

*Citation for published version:*

Coghill, N 2020, A quantitative service evaluation of a telephone outreach initiative to enhance the uptake of NHS Health Checks. in *2020 South West Society for Academic Primary Care Conference Proceedings*. pp. 9, South West Society for Academic Primary Care Conference, bRISTOL, 5/03/20.  
<<https://sapc.ac.uk/conference/2020/abstract/quantitative-service-evaluation-of-telephone-outreach-initiative-enhance>>

*Publication date:*  
2020

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication](#)

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# South West Society for Academic Primary Care (SAPC) Conference 2020

5-6 March, Bristol

## Abstracts

DOI reference: 10.37361/sw.2020.1.1

DOI LINK: <https://sapc.ac.uk/doi/10.37361/sw.2020.1.1>

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## **1A.1 Which patients miss booked appointments with their general practice and why? A systematic review**

**Jo Parsons and Carol Bryce**, University of Warwick

*Dr Joanne Parsons, Dr Carol Bryce, Adam Steege, Joanna Gao and Dr Helen Atherton.*

### **Problem**

Missed GP appointments have substantial time and cost implications for the NHS, with an estimated 15 million appointments being missed annually. The high volume of missed appointments potentially exacerbates health inequalities of some patient groups, reduces access to general practice appointments, and decreases finite GP capacity. The aim of this review is to examine which patient groups are more likely to miss appointments, and to explore the reasons that patients miss appointments.

### **Approach**

Medline, Premedline, Embase, PsychInfo, Web of Science, Scopus, Cochrane reviews and CENTRAL were searched. Terms relating to General Practice and missed appointments were included in the searches. We included all studies published since 2003 which considered missed appointments using any study design. Titles, abstracts and full texts of results were screened, and relevant data was extracted from included studies. Quality assessment was conducted on included studies, using the Mixed Methods Appraisal Tool. A narrative synthesis will be conducted on included studies.

### **Findings**

Preliminary results indicate that 40 studies fit eligibility criteria to be included in the review, which is ongoing. The review aims to identify patients who miss booked appointments in general practice. Using demographic information about patients who miss appointments we will discuss who books the missed appointments, who the appointments were booked with and reasons why patients missed these appointments. This data will be used to further understand which patients miss booked appointments and why.

### **Consequences**

Understanding missed appointments and the reasons patients miss appointments will help identify patient groups that are more likely to miss appointments and use this information to target initiatives to reduce missed appointments, and shape services to suit these groups. Reducing the number of missed appointments will help to reduce the cost and burden on general practices and the work will help identify any patterns of health inequity within the NHS. This will further help to identify and make plans to rectify unmet need.



## **1A.2 Is continuity of primary care declining in England? A longitudinal study at practice-level with repeated measures for the years 2012 to 2017**

**Peter Tammes**, University of Bristol

*Richard W Morris, Chris Salisbury*

### **Problem**

Continuity of care, usually defined as seeing the same GP, is central to primary care and is associated with improved patient outcomes. We aimed (i) to confirm reports of decline in continuity of care, ii) to identify patient characteristics and experiences associated with any decline, iii) to identify consequences of any decline for patients.

### **Approach**

Longitudinal study applying multilevel modelling whereby time and practices were level-1 and level-2 units, respectively. Aggregated data at practice-level came from repeated questions in GP-Patient Surveys between 2012-2017. We analysed (i) trends in percentages of patients reporting A) having a preferred GP, and B) seeing their preferred GP always/often. We also estimated regression coefficients for relationships between percentages of patients (iiA) having and (iiB) seeing their preferred GP always/often and percentages of patients in a practice with long-term conditions (LTCs) and difficulties in appointment-making, and (iii) between the percentage of patients confident in health-management and percentage of patients seeing their preferred GP always/often. We focused on relationships within practices over time, since these reflect effects of changes in the indicators on changes in outcome. Models were adjusted for age, gender, ethnicity, religion, full-time work/study, and response rates. Practice-years were excluded if response rate was less than 20% or had missing information, resulting in over 42,000 observations (practice-years) in the three regression modelsF.

### **Findings**

Overall, 56.7% (95%CI 56.4, 57.0) of patients had a preferred GP in 2012, this declined gradually by 9.4%-points (95%CI -9.6, -9.2) by 2017. Of these patients, 66.4% (95%CI 66.0, 66.8) always/often saw their preferred GP when consulting in 2012. This gradually declined by 9.7%-points (95%CI -10.0, -9.4) by 2017. When practices showed an increase over time of 10% of their patients having difficulties in appointment-making then the percentage having a preferred GP decreased by 0.7%-points (95%CI -0.8, -0.6) and the percentage always/often seeing their preferred GP decreased by 4.6%-points (95%CI -4.7, -4.4). An increase over time of 10% of patients having LTCs was associated with an increasing percentage having a preferred GP by 1.7%-points (95%CI 1.6, 1.8) and increasing percentage seeing always/often their preferred GP by 0.5%-points (95%CI 0.3, 0.6). When practices showed a decrease over time of 10% of their patients seeing their preferred GP always/often then the percentage of patients confident in health-management decreased by 0.2% (95%CI -0.2, -0.1).

### **Consequences**

Patients reported a steady decline over time in continuity of care. Access difficulties led to worse continuity of care while an increase in patients with LTCs resulted only in a slight increase in continuity of care. Declining continuity of care was associated with a slight decline in patient health-management. Continuation of declining continuity of care could result in poorer patients' outcomes and should alarm clinicians and policymakers.

### **1A.3 A Quantitative Service Evaluation of a Telephone Outreach Initiative to Enhance the Uptake of NHS Health Checks**

**Nikki Coghill**, University of Bath

#### **Problem**

The NHS Health Check programme aims to identify cardiovascular (CV) risk in those aged 40-74, with the goal of reducing cardiovascular events and health inequalities. CV incident is higher in lower socioeconomic and ethnic minority groups. Invitations for a Checks are usually made via letter. However, research has indicated that telephone and verbal invitations increase likelihood of attendance. To address this and encourage the above groups to better engage with NHS Health Checks we adopted a novel approach compared to the usual invite. Our aim was to determine the efficacy of a targeted telephone outreach service for inviting patient from 'hard to reach groups for an NHS health Check, in general practices located in the most deprived areas of Bristol.

#### **Approach**

Using a quasi-experimental approach, 12 general-practices self-selected to use the telephone outreach initiative (intervention). Specially trained, community-link workers contacted patients, and conducted aspects of the Check by phone. Following this, patient's were invited to complete remaining aspects of their Check at their general-practice. Five practices acted as a control, using a letter, opportunistic or telephone call invitations; with no aspect of the Check being conducted during the telephone call. Primary outcome: Compare the rate of uptake of an NHS Health Check in the target population, in GP practices using the telephone outreach initiative, with the rate of uptake in control. Secondary outcomes: Investigate the relationship between attendance and patient demographics (age, gender, IMD and ethnicity) in the target population. Descriptive statistics characterised populations and binary logistical regression tested associations between attendance for a health check and population characteristics.

#### **Findings**

Uptake was 24% and 35% in intervention versus control practices. Missing data precluded inclusion of ethnicity in regression models. Intervention practices were more successful at attracting ethnic minority patients to complete their Check (25.6%) compared to control practices (7.2%). In intervention practices after controlling for age, gender, IMD quintile and telephone-call outcome, age wasn't a significant predictor of attendance; compared to women, men were significantly less likely to complete their Check (OR 0.75 95% CI 0.58 to 0.98); IMD was a significant predictor of attendance with those in the fifth IMD quintile being less likely to attend compared to those in the first IMD quintile (OR 0.64 95% CI 0.50 to 0.82).

#### **Consequences**

Despite this initiative being offered by the most deprived practices in Bristol, it attracted the least deprived patients. However, intervention practises were more successful at attracting patients from ethnic minorities. We only evaluated the first nine months of the initiative. Previous novel initiatives encouraging uptake of Health Checks, in Bristol, have shown a lagged adoption. Feedback on improvements, based on recommendations from this evaluation, may result in enhanced uptake from the intervention as it further embeds within practices.

## **1A.4 Inequalities in place of death associated with deprivation in England**

**Sam Hodgson**, University of Southampton

*Layla Guscoth, Jack Hodgson*

### **Problem**

Inequality is rising in the United Kingdom in multiple domains. Achieving equity in access to preferred place of death has been on the public and political agenda for decades. A majority of patients would prefer to die in their own home or a hospice, and few would choose to die in hospital. Historic data demonstrate an association between deprivation rates and inequalities in place of death. We analyse associations and trends in deprivation and location of death in England between 2015 and 2019.

### **Approach**

We performed cross-sectional analyses of association between place of death and deprivation in England between 2015 and 2019. Data on Index of Multiple Deprivation (IMD) and place of death was obtained from publicly available Office of National Statistics datasets. Recorded death locations were: usual residence; in a hospital; in a care home; in a hospice. Associations between levels of deprivation and proportions of deaths in each location were assessed with correlation coefficients calculated using Kendall's method, and compared over time.

### **Findings**

The proportion of patients dying in hospital was higher in more deprived areas in both 2015 (correlation coefficient = 0.30,  $p < 0.001$ ) and 2019 (correlation coefficient = 0.23,  $p < 0.001$ ). The proportion of patients dying at their usual residence was lower in more deprived areas in both 2015 (correlation coefficient -0.29,  $p < 0.001$ ) and 2019 (correlation coefficient = -0.24,  $P < 0.001$ ). There was no correlation between the proportion of patients dying in hospice and IMD in either 2015 (correlation coefficient = -0.04,  $p = 0.40$ ) or 2019 (correlation coefficient = -0.03,  $p = 0.51$ ). There was no significant difference between 2015 and 2019 correlation coefficients for any of the analysed places of death.

### **Consequences**

Inequalities in place of death associated with deprivation levels persisted from 2015 to 2019 in England. Despite few people wanting to die in hospital, there is a clear socioeconomic disparity in place of death. More research is required into long-term care availability in more deprived areas, access to those services and education surrounding preferred place of care.

## **1A.5 Chinese People within End of Life Care in Community Settings: A Scoping Review**

**Susan Zhao**, University of Warwick

*Jeremy Dale, Rachel Potter*

### **Problem**

End of life (EoL) care is becoming a global challenge and a public health issue as a large number of people involved and unmet needs population (WHO, 2014). Promoting community based EoL care helps reach people who are in needs. Culture has a profound influence on our understanding of what is appropriate care for patients at the end of life, however the evidence base is paucity, particularly in Chinese cultural background. The researches focused on Chinese people within end of life care in community settings are under-resourced. It's needed to assess the breadth of a body of literature in this area and identify gaps in existing literature.

### **Approach**

A systematic scoping review was carried out to address the identified review question--'What does know about Chinese people within EoL care in community settings?'. This approach enables to systematically assess the breadth of a body of literature in this particular research area. It's particularly useful when mapping broad areas of research and helping to identify gaps in existing literature. Using this approach, we conducted systematic searches following search strategy, reviewed, categorised and synthesised a large volume of published research on Chinese people within end of life care in community settings. Quality assessment was not conducted.

### **Findings**

The results indicate the number of publications by year (1993-Feb 2019), the location of publications, the methods of published studies, the areas of studies focused on, and the participants of studies in the available published literature.

### **Consequences**

The existing literature of this research area varies in the amount of researches conducted, the methods' application, the focused study areas and the characters of participants in different location. The results suggested that research evidences are needed in caring for Chinese people within EoL in community settings in different country context. The identified gaps of the literature in different location enable researchers to develop future research based on their own country context.

## **1A.6 How do we offer Improved Access with limited staff?**

**Kim Harman**, Bath Enhanced Medical Services+

*Julia Griffiths, Dan Smith, Roger Stead*

### **Problem**

The demand for Primary care services are increasing, more people are working, the increase in demand is acutely seen in working-age populations.

### **Approach**

The Improved Access service is designed to provide GP Practices with an additional option when they are unable to offer a suitable appointment during their own opening times. It is not an alternative to the usual GP Practice. We use local staff to make the most of their knowledge. Currently employing 23 GPs, 17 nurses and 9 receptionists. 4 practices cover the Bath & NE Somerset (BaNES) geographical area as hosts; in Bath city, Paulton and Keynsham. As most practices use SystmOne this is our Electronic Medical Record System (EMRS) of choice. This allows booking directly into the service by the practice, increasing confidence by patients, plus clinical notes to be both accessed/updated in real time. When booking an appointment, the Practice asks for consent to share the individual's medical records with the service. Appointments are available Monday-Friday 18:00-21:00, Saturday/Sunday 08:00-12:00, with appointments available up to 4 weeks in advance. We monitor the presenting problems by splitting into general/mental health/dermatology/gynaecology/acute/systemic illness/MSK. The clinicians can refer for further investigations and to other services. The EMRS 'task' method is used to inform home practices of attendance/outcomes.

### **Findings**

Clinics have recently run at 91% of booking capacity, GP appointments 90%, nurse 70%. The wait for an appointment is most commonly 2 days, 61% of patients seen within 3 days of request. We have monitored which practices refer, the number of patients, total, and from each practice. All practices refer. The numbers of patients aged 0-16y and >65y has always been low compared to 17-65y. The number using the service has been steady since February 2019 (means 0-16y 77/month, 17-65y 717/month, >65y 137/month). More females (+/-30%) use the service than males, mirroring primary care nationally, the pattern of use paralleling each other. The main presenting problems are (excluding general problems) Dermatology and MSK - Mar-Sept 2019 550 and 509 patients, 26% receive prescriptions, 5% further investigations, 3% secondary care referrals. Patient satisfaction survey results continue to show 100% positive rates, with a mean return rate of 31%.

### **Consequences**

Those practices that historically did not use SystmOne at the beginning of the project have a reduced uptake but since they have changed access use has increased. The host practices use the service more -the surroundings for patients may play a part as the staff vary. NHS England and the CCG have suggested considering providing additional sessions to better meet the contractual obligation of 95hours per week - current mean 81hrs. To increase staffing, we may consider using ANPs to compliment to GPs to assist with prescribing. The presenting problem use shows we need to employ staff with Dermatology and MSK skills.

## **1B.1 Acceptability, understanding and experience of diagnostic tests for prostate cancer: a qualitative study with GPs**

**Samuel W D Merriel**, University of Exeter

*Dr Alice Forster, Dr Steph Archer, Mr David Eldred-Evans, Mr John McGrath, Prof Hashim Ahmed, Prof Willie Hamilton, Dr Fiona Walter*

### **Problem**

Multiparametric MRI (mpMRI) is a new diagnostic test for prostate cancer, and is now recommended by NICE prior to prostate biopsy. Diagnostic accuracy studies show mpMRI can improve biopsy accuracy and avoid potentially unnecessary biopsies, but other important aspects of implementing mpMRI as a new diagnostic test have not been examined. There are no studies assessing acceptability of mpMRI for prostate cancer with any theoretical underpinning. There are very few studies exploring GP's understanding of diagnostic tests for prostate cancer. The aim of this study is to understand, from the perspective of GPs, the acceptability of mpMRI as a diagnostic test for prostate cancer.

### **Approach**

This qualitative study employed semi-structured interviews with GPs who have referred men with suspected prostate cancer for further investigation in the last 12 months. GPs were recruited via the NIHR Clinical Research Network in South-West England and London. Interviews were conducted in-person or via telephone, and all were conducted by SM. They were audio recorded, and transcribed verbatim. A thematic analysis approach has been taken, both inductively by generating codes and themes from the data and deductively using Sekhon's Theoretical Framework of Acceptability (TFA). The analysis team (SM, FW, and SA) discussed and refined the codes and themes to produce a thematic map, based on the early interviews. This study has ethical approval from the NHS Health Research Authority and the NHS South West - Frenchay Research Ethics Committee.

### **Findings**

11 GPs have been interviewed, with a spread of age (38-46 years) and gender (6 female). All interviews have been conducted, recorded and transcribed. Early analysis found there was a range of views regarding the potential for GPs to utilise mpMRI in the diagnosis of prostate cancer in primary care; some GPs felt it should remain a secondary care test whilst others could see GPs using it in the future. GPs raised some concerns about the cost and availability of mpMRI. Further analysis of the interviews, and application of Sekhon's TFA will be conducted prior to SW SAPC.

### **Consequences**

The new NICE recommendations do not specify whether mpMRI should be performed in primary or secondary care. Given the potential to reduce unnecessary prostate biopsies and the apparent acceptability of mpMRI to patients and clinicians, mpMRI could one day be used in primary care in the assessment of men with possible prostate cancer to reduce urgent urology referrals and avoid prostate biopsy complications. Financial, resource, and workforce implications for the NHS would need to be considered prior to GP access to mpMRI.

## **1B.2 Oesophagogastric cancer: Timeliness of diagnosis in patients with pre-existing disease**

**Sarah Price**, University of Exeter

*Sarah Price, Willie Hamilton*

### **Problem**

Pre-existing conditions may complicate cancer diagnosis by presenting diagnostic alternatives for cancer symptoms or by competing for clinical attention. This study investigated associations between time to oesophagogastric cancer diagnosis and (a) pre-existing conditions providing plausible diagnostic alternatives to cancer; and (b) number of pre-existing conditions. Oesophagogastric cancer was studied because of its poor 1-year survival (42%) and the unknown impact of pre-existing conditions on the diagnostic process.

### **Approach**

This primary care study used Clinical Practice Research Datalink data with English cancer registry linkage. Patients were aged  $\geq 55$  with an incident diagnosis of oesophagogastric cancer between 01/01/2012 and 31/12/2017. Diagnosis date was the earliest recorded CPRD or Registry diagnostic code. The index date was assigned as when patients met criteria for investigation in National Institute for Health and Care Excellence referral guidelines for suspected oesophagogastric cancer. It was determined from the patient's age and the presence of codes for dysphagia, haematemesis, upper abdominal pain, weight loss, nausea, vomiting, dyspepsia, or reflux. CPRD records in the 2 years before the index date were searched for diagnostic codes for pre-existing conditions listed in the Quality and Outcomes Framework, or which provided plausible diagnostic explanations for the cancer symptoms. Time from index date to diagnosis was modelled using an accelerated failure time model, reporting time ratios (TR) with 95% confidence interval (CI). Predictors included cancer site (stomach or oesophagus), age, sex, pre-existing condition count, an "alternative-explanations" variable where pre-existing condition(s) offered diagnostic alternatives at the index date. Interaction terms were sought by separate cancer site.

### **Findings**

3,806 (69.0% male) patients were studied, of whom 1,982 (68.8% male) met NICE criteria for investigation. Mean (standard deviation) age at diagnosis was 74.6 (9.5) and 72.9 (10.0) years, respectively, for stomach ( $n=526/1,982$ , 26.5%) and oesophageal ( $n=1,456/1,982$ , 73.5%) cancers. At least one pre-existing condition was diagnosed in 317/526 (60.3%) stomach and in 794/1,456 (54.5%) oesophageal cancer patients, of which 73/526 (13.9%) and 143/1,456 (9.8%), respectively, provided plausible diagnostic alternatives. Having 2 or more pre-existing conditions was associated with longer time to diagnosis for stomach (TR 1.55, CI 1.14 to 2.10,  $p=0.005$ ), and with shorter times for oesophageal (0.64, 0.45 to 0.91,  $p=0.012$ ) cancer. Having alternative explanations was moderately associated with longer time to diagnosis for oesophageal cancer (1.52, 1.01 to 2.30,  $p=0.045$ ), and with shorter times for stomach cancer (0.64, 0.45 to 0.92,  $p=0.015$ ).

### **Consequences**

The results suggest that pre-existing conditions complicate the diagnostic process for oesophagogastric cancer. The diagnostic process may be lengthened for stomach cancer by increasing count of conditions, and for oesophageal cancer by the presence of plausible diagnostic alternatives. The interpretation of shortening times to diagnosis may not reflect improved patient outcomes where patients present very late in their disease ("sick-quick").

### **1B.3 Guideline discordant diagnostic care: when do primary care referrals not reflect guidelines for suspected cancer?**

**Gary Abel**, University of Exeter

*Bianca Wiering, Georgios Lyratzopoulos, John Campbell, William Hamilton*

#### **Problem**

A key service aimed at improving UK cancer survival rates (through improved diagnostic timeliness) is the fast-track referral system known as the two-week wait pathway. Guidelines advise general practitioners which patients warrant a two-week wait referral. However, guidelines are only effective to the degree that they are implemented. This study aims to investigate how often GPs follow the referral guidelines and whether certain types of patients are more or less likely to be referred.

#### **Approach**

We used linked primary care (Clinical Practice Research Datalink) and secondary care (Hospital Episode Statistics) data. Patients presenting with any one of 6 symptoms (haematuria, rectal bleeding, breast lump, post-menopausal bleeding, dysphagia or anaemia) for the first time during 2014-2015 were included (for ages where NICE guidelines recommend two-week wait referral). For patients presenting with haematuria, either the second or third GP visit was defined as the index consultation where patients had received treatment for urinary tract infection during earlier visits. A composite outcome of a two-week wait referral or urgent referral was used since both reflect the need for an urgent clinical assessment. Multilevel logistic regression was used to investigate whether the tendency to refer varies symptoms and patient characteristics (age, gender, ethnicity, comorbidities and deprivation level). Further analyses investigated whether patients not receiving a referral were diagnosed with cancer within one year of the index consultation.

#### **Findings**

Preliminary results for referrals made within 14 days of first presentation with a recorded symptom indicate a high percentage of patients do not receive a two-week wait or urgent referral, varying from 81.8% (rectal bleeding) to 33.3% (breast lump). There is evidence that referrals are associated with age and comorbidities ( $p < 0.001$ ), with young patients and patients with comorbidities less likely to receive a referral. Associations between patient characteristics and referrals differ by symptom. More deprived patients with breast lumps, female patients with anaemia or haematuria and non-white patients with rectal bleeding were less likely to receive a referral. Furthermore, interim findings suggest that around 2.3% of patients not receiving a referral were later diagnosed with cancer.

#### **Consequences**

Guideline recommended actions often do not occur for patients presenting with common possible cancer symptoms. Given that a significant number of such patients go on to be diagnosed with cancer, better adherence to referral guidelines could potentially improve the cancer diagnostic process for many people. Appreciating which patient groups are at greater risk of non-referral against guideline recommendations can help target improvement efforts. For example, these findings may be used by schemes such as CRUK cancer facilitators and Macmillan GPs to directly influence practice. Alternatively, they could inform educational materials and novel interventions targeting early diagnosis.



## **1B.4 Acceptability, understanding and experience of diagnostic tests for prostate cancer: a qualitative study with patients**

**Samuel W D Merriel**, University of Exeter

*Dr Alice Forster, Dr Steph Archer, Mr David Eldred-Evans, Mr John McGrath, Prof Hashim Ahmed, Prof Willie Hamilton, Dr Fiona Walter*

### **Problem**

Multiparametric MRI (mpMRI) is a new diagnostic test for prostate cancer, and is now recommended by NICE prior to prostate biopsy. Diagnostic accuracy studies show mpMRI can improve biopsy accuracy and avoid potentially unnecessary biopsies, but other important aspects of implementing mpMRI as a new diagnostic test have not been examined. There are no studies assessing acceptability of mpMRI for prostate cancer with any theoretical underpinning, and questions remain about men's experience of undergoing the test and their understanding of the results. The aim of this study is to understand, from the perspective of patients, the acceptability of mpMRI as a diagnostic test for prostate cancer.

### **Approach**

This qualitative study employed semi-structured interviews with men referred from primary care with suspected prostate cancer who have undergone mpMRI as part of their diagnostic work-up. Men were recruited from two hospital sites (Exeter and London), via outpatient 'Two-Week Wait' clinics. Interviews were conducted in-person or via telephone, and all were conducted by SM. They were audio recorded, and transcribed verbatim. A thematic analysis approach has been taken, both inductively by generating codes and themes from the data and deductively using Sekhon's Theoretical Framework of Acceptability (TFA). The analysis team (SM, FW, and SA) discussed and refined the codes and themes to produce a thematic map, based on the early interviews. This study has ethical approval from the NHS Health Research Authority and the NHS South West - Frenchay Research Ethics Committee.

### **Findings**

20 men have been interviewed for this study, with a range of ages (47-80 years) and geographical regions (10 urban; 10 rural); most have a white ethnic background (16 White British; 4 BME). Many men were philosophical about receiving a diagnosis of prostate cancer ("It is what it is"), although some felt it significantly impacted on their life and their health. mpMRI meets many of the constructs in Sekhon's TFA. It has a low Burden and good Self-Efficacy ("It's an easy test to take"), as well as high Intervention Coherence ("I think I knew pretty well what it was for") and Perceived Effectiveness ("The MRI scan found some areas that were, let's say, suspicious...").

### **Consequences**

The new NICE recommendations do not specify whether mpMRI should be performed in primary or secondary care. Given the potential to reduce unnecessary prostate biopsies and the apparent acceptability of mpMRI to patients and clinicians, mpMRI could one day be used in primary care in the assessment of men with possible prostate cancer to reduce urgent urology referrals and avoid prostate biopsy complications. Financial, resource, and workforce implications for the NHS would need to be considered prior to GP access to mpMRI.

## **1C.1 EMPATHICA - Developing an Empathy and Optimism training tool for Healthcare Practitioners**

**Kirsten A. Smith**, University of Southampton

*Felicity Bishop, Hazel Everitt, Leanne Morrison, Jeremy Howick, Kirsten A. Smith, Stephanie Hughes, Jane Vennik, Emily Lyness, Mohana Ratnapalan, Hajira Dambha-Miller, Christian Mallen, Paul Little, Lucy Yardley*

### **Problem**

Osteoarthritis (OA) pain is common, costly, and challenging to manage in busy primary care settings. Recent research suggests that patients experience less pain after consulting practitioners who show empathy and encourage optimism about treatment.

### **Approach**

We are developing an online training tool using the Person-based Approach to teach practitioners (GPs, physiotherapists, and nurses) how to show more empathy and encourage patients to have positive yet realistic expectations. To do this, we first explored the literature on practitioner communication skills, conducting: 1. A content analysis on interventions to increase empathic communication among practitioners ; 2. A content analysis on interventions to evoke positive expectations of treatment outcomes among patients; 3. A meta-ethnography to synthesize evidence on patients' and practitioners' perspectives on communication in primary care OA consultations. We then conducted interviews with practitioners to explore the barriers and facilitators to online training in empathy and optimism.

### **Findings**

We brought this evidence together with a behavioural analysis to develop guiding principles and a logic model to inform our intervention development. We then developed the training tool, using think-aloud interviews to iteratively refine the content to improve its acceptability to practitioners. We filmed consultations using the guidance in our training tool and collected patient views to ensure the messages of our training tool were acceptable to patients. In 2020 we will conduct a feasibility trial in 10 GP practices with up to 280 patients to explore the feasibility of the training and how to trial it most efficiently.

### **Consequences**

We hypothesize that our training tool will increase perceived empathy, improve patient optimism about the outcome of their treatment and reduce pain in OA patients; it may also lead to improved consultation and health outcomes for patients consulting with other conditions in primary care.

## **1C.2 Continuing Professional Development for General Practitioners in Myanmar: a pilot programme**

**Kerran Kandola**, NHS Thames Valley and Wessex Leadership Academy

*Myint Oo*

### **Problem**

The Myanmar Government has ambitiously strategised to achieve Universal Health Coverage by 2035. A key factor in the success of this will be improving the quality of general practice which currently is highly variable. Currently, no formalised system of revalidation exists for clinicians and so, engagement with continuing professional development (CPD) activities is sporadic.

The goals of this three month pilot CPD programme were to train general practitioners (GPs) in three key areas; (i) how to record their CPD activities and maintain a portfolio logbook, (ii) how to reflect on their learning, and (iii) how a future formalised CPD credit system could work.

### **Approach**

Sixty one GPs were recruited in March 2019 and given training on the above. Logbooks were provided to complete as they attended a simultaneous three-month GP training course organised by the GP Society of Myanmar (GPSM). At the end of the pilot the GPs were asked to submit a survey alongside their logbooks for evaluation, these were marked and individualised feedback given.

### **Findings**

100% of GPs agreed the pilot helped them to understand how to maintain a CPD logbook and they would now be more likely to continue to do so (retention rate of 67%). Most GPs (95%) also understood the level of importance of keeping a record of CPD activities as being “extremely” or “very” important. Finally, all GPs surveyed felt a credit reward system, used as evidence of CPD participation, would positively influence their future engagement with CPD.

### **Consequences**

Improving general practice is a key component in helping Myanmar develop its healthcare system; one step required is making engagement with CPD compulsory for the revalidation of clinicians in order to encourage active participation in this life-long learning process. The GPSM have already begun taking steps to implement this, and the above pilot CPD programme advocates in favour of the importance and likelihood of success of doing so.

### **1C.3 GP trainees' and First5's preparedness for complaints**

**Olivia Jagger**, University of Southampton

*Hazel Everitt, Catherine Woods*

#### **Problem**

Complaints about doctors are rising. NHS Digital data reported 94,637 complaints in primary care in 2017/18, a 14.6% increase over 2 years.. Wessex GP Education Unit identified preparedness for complaints as a gap in their Vocational Training Scheme (VTS). Effectively responding to complaints, demonstrating learning from complaints and managing the personal impact of complaints are competencies in the GP curriculum. However, GPs often report feeling unprepared for managing complaints in practice. This is important because there is a growing body of evidence that complaints can negatively impact doctors mental health, wellbeing, professional performance and career choices, with implications for patient care and workforce retention. The transition from trainee to qualified GP is recognised as a challenging and stressful career stage, transitioning from a supportive well-protected environment to independent practice. Newly qualified GP's are a vulnerable group at higher risk of mental illness and burnout through pressures of work. One in four GPs accessing the national GP health service are First5's. An NHS England review into complaint handling in general practice identified a need to improve support for GP's through education in complaints management before they qualify. The aim of this study is to understand GP trainee and First5's experiences of, attitudes towards, impact of and perceived preparedness for complaints and importantly, how they could be better prepared.

#### **Approach**

Qualitative semi-structured interviews with 15-30 GP trainees and First 5's in Wessex are planned. A topic guide has been developed, informed by the literature and expert opinion and trialed in 2 interviews. Interviews will be audio-recorded, transcribed, anonymised and imported into NVivo and thematic analysis undertaken.

#### **Findings**

Ethical approval has been sought and preliminary results will be presented at the conference.

#### **Consequences**

Little is known about GP trainees experiences of, the impact of or their perceived preparedness for complaints. Findings will inform development of an educational intervention within Southampton VTS to improve GP trainees' preparedness for complaints.

## **1C.4 What do medical students expect from primary care teaching?**

**Zoe Brown and Lucy Jenkins**, University of Bristol

*Zoe Brown, Lucy Jenkins*

### **Problem**

Concerns remain about the declining workforce in general practice. Educators must do their utmost to guarantee medical students a positive introduction to general practice. Medical schools' curricula and LOs are aligned with GMC guidance and mapped to Outcomes for graduates; how does this line up with students' expectations? Our aims were to determine what students believe their learning objectives in primary care teaching should be, to decide if we are teaching them what they want to know, and to develop primary care aspects of the University of Bristol's medical school curriculum. Students can give a unique perspective on "curriculum-inaction" and the hidden curriculum. Results from our research can be fed into development of the new, evolving curriculum at the University of Bristol, and also nationally. There is potential for an impact not only on medical education, but the future of recruitment in general practice.

### **Approach**

220 third-year students were emailed a survey using SurveyMonkey, with Likert scales and white spaces; 37 completed it. 220 GP teachers from CAPC were emailed a similar survey; 59 completed it.

### **Findings**

Quantitative and qualitative data was obtained and analysed. Students and teachers were asked to select LOs they felt should be in the curriculum. Reassuringly, students and GP teachers were in agreement that LOs within the current curriculum are relevant for them. There were discrepancies, the biggest of which was "spend time with practice and district nurses": 83.1% of GP teachers felt this should be in the curriculum; 43.2% of students agreed. Interestingly, the LO "describe the other systems that provide open access health care in the UK" was only selected by 42.4% of GP teachers and 46.0% of medical students. Medical students were asked 'what do you expect from primary care teaching?' A word cloud was produced following thematic analysis of white space answers, with consultations, insight into being a GP, and common conditions as the 3 main themes. Medical students were asked, 'do you think you have enough exposure to general practice throughout your degree?' 55.6% said yes, 19.4% said no, and 25.0% were not sure.

### **Consequences**

The surveys produced a large amount of rich data, a great source for further analysis in future. This is an important area of research which needs exploring further, not only for UoB, but all medical students. The statistic of 55.6% of students agreeing they have enough exposure to general practice is reassuring - or arguably, is it worryingly low? Until the workforce issues are resolved, the question remains - are we getting it right? Results will be discussed with UoB as the new curriculum is developed, which involves students becoming more exposed to general practice throughout their degree. There is scope to revisit this with future cohorts of medical students to see if teaching matches their expectations.

## **1C.5 The Development of Palliative Care Education and Training for General Practitioners in Yangon, Myanmar: a workshop success**

**Kerran Kandola**, NHS Thames Valley and Wessex Leadership Academy

*Myint Oo*

### **Problem**

Palliative care is an important but often overlooked component of primary care. It is a rapidly developing specialty yet, one third of the world still lack any community palliative care services, and suffer serious health suffering, particularly at the end-of-life, as a result. In Myanmar, the early emergence of palliative care is occurring with the first Palliative Care outpatient department opening two years ago, however, no formal community-based services yet exist. Present challenges include, cultural taboos, resource scarcity, restrictions around opioid prescribing and inadequate education and training. The goal of this quality improvement work was to improve understanding and approach towards palliative care by General Practitioners (GPs) in Yangon.

### **Approach**

An initial primary survey was performed amongst 42 GPs across three different locations (Yangon, Mandalay and Meiktila) in March 2019 demonstrating a gap in current training needs and confirming a willingness by GPs for this to be improved. A two-day workshop, the first ever of its kind, was subsequently designed and held in May for twenty local GP's consisting of lectures and interactive sessions delivered in Burmese. Topics for the workshop included; what is palliative care?, recognising palliative symptoms, management of pain, management of common end-of-life care symptoms, breaking bad news and psychosocial and spiritual support.

### **Findings**

Improvement in knowledge and confidence and, changes in attitude towards palliative care were used as measures of success. A forty two question true/false-style quiz was distributed pre- and post-workshop; this demonstrated a mean total score improvement of 15% post-workshop. Self-reported confidence rating scores regarding confidence when (i) managing palliative or end-of-life care patients, (ii) providing holistic care and (iii) breaking bad news increased by a mean of 25%.

### **Consequences**

The greatest outcome from this workshop by far was the enthusiasm and awareness it generated; it highlighted the importance of developing this area of training for general practitioners in Myanmar. Support was also gained from the President of the Myanmar Medical Association whom delivered an opening speech at the workshop despite initially having reservations about developing this area. Ultimately, the positive feedback from the workshop behaved as an advocate leading to the introduction of a regular palliative care lecture into the Myanmar Diploma in Family Medicine curriculum. It has also spurred a new group of GPs to further this work and turn the workshop into a regular teaching event.

## **1D.1 A meta-analysis over multiple thresholds to compare two prediction rules for acute pharyngitis**

**Brian Willis**, University of Birmingham

*Dyuti Coomar, Mohammed Baragilly*

### **Problem**

Centor's score and McIsaac's score are two rules commonly used to diagnose Group A beta-haemolytic streptococcus (GABHS) infection. However, McIsaac's score applied to primary care has not been meta-analysed; the scores have not been compared by meta-analysis; and a model which may handle all the data reported at multiple cut points has not been used. The aim was to compare the performance of Centor's score and McIsaac's score in diagnosing patients with GABHS presenting to primary care with pharyngitis

### **Approach**

Medline, Embase, PsychInfo, Google and the references from two published reviews were searched for relevant citations. Searches were restricted between 1980 and February 2019. Studies were included if they were: a cross-sectional study; patients with a sore throat were recruited from a primary care population; the study evaluated Centor's or McIsaac's score; GABHS infection was the target diagnosis; the reference standard was a culture throat swab; complete 2 x 2 tables across multiple thresholds were reported. Selection was conducted independently by two reviewers. Data were extracted according to PRISMA-DTA guidance by two independent reviewers. The risk of bias and applicability of results were assessed using the QUADAS-2 tool. A novel meta-analysis random effects model which incorporates data at multiple thresholds was used to synthesise estimates. The main outcomes were a summary receiver operating characteristic (SROC) curve, the area under the curve statistic and a calibration plot corrected for optimism.

### **Findings**

10 studies on Centor's criteria and 8 on McIsaac's score were included. In both sets of studies the prevalence of GABHS ranged between 4 and 44%. Two SROC curves were synthesised and the area under curve, C statistics for McIsaac's score and Centor's score were 0.7052 and 0.6888 respectively. The p-value for the difference (0.0164) was 0.353, suggesting the SROC curves for the tests are equivalent. Both scores demonstrated poor calibration. Both rules provide only fair discrimination of those with and without GABHS infection. McIsaac's score and Centor's score appear broadly equivalent in performance. The poor calibration for a positive test result suggests other point of care tests are required to 'rule in' GABHS. However, with either rule a score of zero may be sufficient to 'rule-out' infection.

### **Consequences**

This comparative meta-analysis demonstrates that Centor's score and McIsaac's score have broadly similar performance characteristics in diagnosing GABHS in primary care. Neither score is sufficiently accurate to rule in GABHS infection and if applied as recommended could lead to over 1 in 2 patients being prescribed antibiotics inappropriately. Other point of care diagnostics that augment these scores are needed if rates of inappropriate antibiotic prescriptions are to be reduced. However, a score of zero (or less) in either rule potentially has a role in ruling out GABHS infection in primary care.

## **1D.2 A mixed-methods evaluation of a novel microbiological point-of-care test for patients with respiratory tract infections in primary care**

**Tanzeela Y Khalid**, University of Bristol

*Lorna Duncan, Hannah V Thornton, Gemma Lasseter, Alastair D Hay*

### **Problem**

Microbiological point-of-care tests (MPOCTs) are advocated to improve antibiotic prescribing in primary care, where 75-80% of all NHS prescribing takes place. MPOCTs have recently become available for respiratory tract infections (RTIs) but their use has yet to be evaluated in primary care. We aimed to assess if, when and how primary care clinicians use a novel respiratory MPOCT, and to understand their perceptions of MPOCT use.

### **Approach**

We provided four GP practices serving a diverse population of 84,000 patients with the BioMérieux BioFire FilmArray® respiratory MPOCT, each for 6-8 weeks. Patients were eligible if aged >3 months and attending with any acute ( $\leq 28$  days) suspected RTI. Before testing, clinicians recorded patient characteristics and diagnosis, antibiotic prescribing intention and perceived benefit of antibiotics. Dual throat and nose swabs tested for 17 respiratory viruses and three atypical bacteria. After viewing results, clinicians re-reported diagnosis and perceived antibiotic benefit. 22 practice staff were interviewed to obtain their views of the test, and perceptions regarding its potential for routine use.

### **Findings**

42 clinicians were trained of whom 20 (15 GPs plus 5 nurses) recruited 93 (45 plus 48) patients. Clinicians estimated they recruited one in every three eligible patients. Median participant age was 29 (range 0.5 to 83) years and 57% were female. Staff spent a median of 2.72 minutes setting up the test, which then took 65 minutes to run per sample. 71% were tested <4 hours and 90% <24 hours. All were tested <72 hours, the maximum time required for sample stability. Of the 93 samples tested: 34 (37%) reported no pathogen; 54 (58%) detected at least one virus of which one also reported the presence of one atypical bacterium; two samples found atypical bacteria; and three were inconclusive. Clinical certainty in the patient's diagnosis was higher when the test returned a positive result for the detection of a pathogen compared to when negative ( $p < 0.001$ ) and diagnostic certainty significantly increased after test use ( $p = 0.03$ ). Clinicians were more likely pre-test to predict the patient would benefit from antibiotics than post-test ( $p = 0.02$ ). Clinical diagnoses changed in 23% of patient's post-test but <10% were contacted to change their treatment plan. Qualitative staff interviews revealed the test was easy to use and liked, with clear clinical potential, but limitations included sample processing time, one-at-a-time processing and the absence of testing for typical respiratory bacteria.

### **Consequences**

This novel respiratory MPOCT was popular with clinicians and used in a wide variety of patients. MPOCTs could positively impact clinical decision making and antibiotic prescribing, but a randomised controlled trial is needed to establish if they can safely improve patient outcomes. They are more likely to be used if faster, and a greater number of samples can be simultaneously processed.



### **1D.3 Development of the Birmingham Lung Improvement Studies (BLISS) prognostic score for COPD patients in primary care: data from the Birmingham COPD cohort**

**Andrew P Dickens**, University of Birmingham

*Rachel E Jordan, David Fitzmaurice, James Martin, Alice Sitch, Jon G Ayres, KK Cheng, Brendan G Cooper, Amanda Daley, Alexandra Enocson, Sheila Greenfield, Kate Jolly, Sue Jowett, Martin R Miller, Richard D Riley, Stanley Siebert, Robert A*

#### **Problem**

COPD patients in primary care have high rates of hospital admissions. Prognostic scores could be used to guide management of COPD patients and reduce risk of hospital admission, but existing scores do not perform well enough and are not used in practice. We aimed to develop a new prognostic score that was practical for use in the primary care setting.

#### **Approach**

Using data from the Birmingham COPD cohort we developed and internally validated the new BLISS prognostic score to predict respiratory admissions in 2-years from 23 candidate predictors. 1558 patients on COPD registers of 71 GP practices and 331 newly-identified patients from a linked case-finding trial were included and their self-reported and clinical data were combined with routine hospital episode statistics. The primary outcome was the record of at least one respiratory admission within 2 years of cohort entry (May 2012-June 2014). The model was developed using backward elimination of variables with  $p < 0.157$ . Missing data were imputed using chained equations. Discrimination and calibration were assessed. Bootstrapping was used for internal validation, adjusting for overfitting and deriving optimum-adjusted performance statistics.

#### **Findings**

Median (min, max) follow up was 3.0 years (1.8, 3.8). Of the 23 candidate predictors, 6 variables were retained in the final model: age, CAT score, respiratory admissions in the previous 12m, BMI, diabetes, FEV1% predicted. After adjustment for optimism, the model showed promising discrimination in predicting risk of respiratory admissions by 2 years (c-statistic=0.73 (95%CI 0.70, 0.77). The BLISS score showed promising performance in predicting respiratory admissions compared with existing published scores.

#### **Consequences**

All 6 variables are readily available in primary care records or would be easy to collect, and a simple computer programme could calculate the score. Important next steps are external validation in other settings, proposing and evaluating a model of use to guide patient management and exploration of the best ways to implement the score in primary care practice.

#### **1D.4 Professionals' views on using point-of-care CRP testing and delayed antibiotic prescriptions: a focus group study in high antibiotic prescribing general practices**

**Sarah Tonkin-Crine**, University of Oxford

*Dr Anne Campbell, Dr Monsey McLeod, Prof. Alison Holmes, Prof. Sarah Walker, Prof. Chris Butler, Dr Sarah Tonkin-Crine*

##### **Problem**

Clinical trials have shown that the use of point-of-care (POC) C-reactive protein (CRP) tests and delayed/back-up prescriptions are effective strategies to reduce antibiotic use for self-limiting respiratory tract infections in primary care. These strategies may be particularly helpful to (further) reduce antibiotic use in general practices that remain high-prescribers of antibiotics. However, the implementation and routine use of both of these strategies in England remains low. This study aimed to explore the views of professionals from high antibiotic prescribing general practices on the use of these strategies, including barriers and facilitators influencing their uptake.

##### **Approach**

This was a qualitative study. The 20% (139) highest antibiotic prescribing practices in the West Midlands, England, were selected and invited to a focus group. Focus groups were conducted in practices by two researchers, were audio-recorded and transcribed verbatim. The transcripts were coded in NVivo and analysed using thematic analysis.

##### **Findings**

Nine practices participated with 50 professionals (3-11 per practice), including 30 GPs, 2 nurse prescribers, 1 pharmacist prescriber and 17 other staff (e.g. healthcare assistants, receptionists). The focus groups were between 50 and 90 (mean 70) minutes. The key findings included: (1) Tensions between professional role and CRP testing; prescribers reported clinical judgment (based on holistic examination and history) as central to their role, training and experience. Thus, they were unclear how POC CRP testing fits in the routine primary care consultations. They were also unsure when and how to use POC CRP testing. (2) Influences on using delayed antibiotic prescriptions; these included practice context (e.g., rural, dispensing practice), perceptions of a purpose of delayed prescriptions (e.g., safety-netting), and beliefs about how patients use them. (3) Professionals perceived both strategies as potentially helpful tools to negotiate treatment decisions with patients and help maintain patient satisfaction. (4) They reported ambivalent views about usefulness of these strategies in reducing antibiotic use, and were concerned about potential negative consequences (e.g., increasing patient expectation for CRP tests or delayed prescriptions, consultations, costs).

##### **Consequences**

Addressing barriers to, and concerns about, using POC CRP testing and delayed antibiotic prescriptions may help increase uptake of these strategies and optimise antibiotic use. These findings were used to inform development of resources to support the implementation and use of these strategies in high antibiotic prescribing general practices.

## **1D.5 Perspectives on laboratory tests in chronic disease monitoring: preliminary results from a survey among GPs across UK**

**Martha MC Elwenspoek**, University of Bristol

*Martha MC Elwenspoek, Ed Mann, Katharine Alsop, Rita Patel, Jessica C Watson, Penny Whiting*

### **Problem**

We have shown previously that current recommendations in UK guidelines for monitoring chronic diseases are largely based on expert opinion. Due to a lack of robust evidence on optimal monitoring strategies and testing intervals, the guidelines are unclear and incomplete. This uncertainty may underly variation in testing that has been observed across the UK between GP practices and regions.

### **Approach**

Our objective was to better understand GP perspectives on laboratory tests in chronic disease monitoring, the workload, and how confident GPs are in ordering and interpreting these tests. We designed an online survey that was promoted on social media and in newsletters targeting GPs.

### **Findings**

The survey has been completed by 525 GPs of which 69% had more than 10 years of experience as a GP. Over half of respondents reported that they spend over 45 mins per day reviewing laboratory results, with 28% spending over an hour. The majority of respondents reported that they think we currently do too many tests to monitor chronic diseases. There was acceptance that monitoring for chronic disease can be harmful for patients with 29% saying they thought it would frequently be harmful. There was also substantial variation in what tests GPs routinely or sometimes offer for hypertension, type 2 diabetes and chronic kidney disease, especially around liver function tests, full blood count, lipid profile, thyroid function tests and cholesterol. Only 52% felt confident in what to do with abnormal incidental findings picked up during chronic disease monitoring.

### **Consequences**

Although these are only preliminary findings, the response rate is high for a survey of busy clinicians, suggesting that optimising testing in primary care is an important topic for GPs. These results confirm the variation that has been observed in test ordering data. The results also show that most GPs spent a significant part of their day ordering and interpreting monitoring tests. The lack of confidence in knowing how to act on abnormal test results underlines the urgent need for robust evidence on optimal testing and the development of clear and unambiguous testing recommendations.

## **2A.1 Do digital-first consultation models reduce or increase GP workload?**

**Chris Salisbury**, University of Bristol

*Mairead Murphy, Polly Duncan*

### **Problem**

All general practices will be required to offer online and video consultations by April 2021, and the use of telephone consultations is also increasing. Some practices have introduced a digital-first model, whereby patients are expected to use these consultation modes before having a face-to-face consultation only when necessary. These developments are justified by claims that they will both increase access for patients and help GPs to manage their workload, which could allow them to give more time to patients with complex needs. But are these aims compatible or contradictory?

### **Approach**

We conducted a modelling study using data from published studies of online, telephone or video consultations in general practice. Through a systematic literature review we identified studies providing quantitative data about use of digital-first access models for unselected patients requesting a general practice consultation for any problem. We sought estimates about the following variables: the proportion of consultations managed digitally, the proportion of digital consultations completed without a subsequent consultation, the proportion of subsequent consultations conducted by telephone rather than face-to-face, consultation duration, and changes in demand after introduction of a digital-first model. We used the data from the review as inputs to a dynamic model in Excel which enabled us to estimate the overall impact on GP workload. The model provided a base-case estimate using evidence from the published studies and graphically demonstrates how workload varies under different plausible scenarios.

### **Findings**

Under most plausible scenarios, digital-first approaches to accessing primary care are likely to increase GPs workload. They could decrease workload if their duration is shorter, and a higher proportion of digital consultations are managed without a subsequent face-to-face consultation, than observed in most published studies. An important determinant of workload is whether digital-first approaches increase or reduce overall demand for GP, but there is little robust evidence about this question.

### **Consequences**

Digital-first consultations to primary care are likely to increase GP workload unless stringent conditions are met, so how they are implemented is crucial. If they do increase workload they may still be justified, but this should be based on evidence about the benefits in relation to the costs, rather than assumptions about reductions in workload. Improvements in access from digital-first consultations could mean GPs devoting more of their time to younger and healthier patients, which could reduce the time available for older and sicker patients who need face-to-face care. Given this potential for increasing health inequalities, and increased workload at a time of GP shortages, these initiatives should be rolled out in a staged way alongside careful evaluation. In particular, we need long term studies from natural experiments on how changes in access to care are associated with changes in general practice workload.

## **2A.2 Awareness and use of online appointment booking in general practice: analysis of GP Patient Survey data**

**Mayam Gomez Cano**, University of Exeter

*Helen Atherton, John Campbell, Abi Eccles, Jeremy Dale, Leon Poltawski, Gary Abel*

### **Problem**

General practices are required to provide online booking to patients in line with policy to digitise access. Online booking services offer the option of booking an appointment 24/7 using the internet. However, uptake of online booking by patients is currently low and there is little evidence about awareness and use by different patient groups.

### **Approach**

As part of the OBoE study, we performed a secondary analysis of GP Patient Survey data (2018) making use of two questions, one asking about awareness of online booking of appointments and another asking about use. Multivariate logistic regression was used to examine associations between both awareness and use in relation to age, gender, ethnicity, deprivation, the presence of a long-term condition, long-term sickness and being deaf. Comparison of models accounting for and not accounting for clustering by practice was used to illustrate the extent to which disparities reflect the clustering of certain types of patients in practices where awareness and use of online booking is high or low for all patient groups.

### **Findings**

Of 647,064 patients answering the relevant question, 277,278 (43.3%) reported being aware of being able to book appointments online. In contrast, only 14% (93,671 /641,073) reported having actually booked an appointment online. There was evidence of variation by all factors considered. In particular, strong deprivation gradients in both awareness and use were evident (e.g. most vs. least deprived quintile OR for use=0.63 95%CI 0.61-0.65). There was a strong drop off in both awareness and use in patients over 75 (e.g. 85+ vs. 65-74 years OR for awareness=0.33 95%CI 0.32-0.35). Patients with long-term conditions were more aware and more likely to use online booking, however, deaf patients were less likely to be aware, but more likely to use online booking (not-deaf vs deaf OR for awareness= 0.78, 95%CI 0.70-0.86, OR for use= 1.29, 95%CI 1.14-1.46). Adjustment for practice suggest that around a third of the deprivation gradient in awareness and a fifth of the deprivation gradient in use is attributable to deprived patients being clustered in practices with low awareness/use for all patients.

### **Consequences**

Whilst over 40% of patients know that they can book appointment online, the number that actually do so is far lower. Furthermore, awareness and use of online appointment booking varies by patient group. Some of this variability is reassuring, for example that patients with long-term conditions are using the service, whilst other variability is more concerning, for example the strong deprivation gradient and drop off in old age. With the constant push for online services within the NHS, practices need to be aware that not all patient groups will book appointments online and that other routes of access need to be maintained to avoid widening health inequalities.

### **2A.3 Primary care community hubs - what are they for, what do they look like and do they work? A rapid review.**

**Lorna Duncan**, University of Bristol

*L. Duncan, C. Salisbury, N. Roberts, S. Purdy, P. Bower, M. Moore, G. Feder, A.L Huntley*

#### **Problem**

Improving access to general practice and other primary care services is a key concern for policy-makers and practitioners. In the last decade several schemes, including the Primary Care Access Fund (PCAF), have been put in place at least in part to achieve this. The Primary Care Community Hub (PCCH) is one model to have been developed in this way and our review aimed to identify the aims, design model(s) and evidence for the effectiveness of these PCCHs in England.

#### **Approach**

Customized searches with a five year time limit were performed in MEDLINE and Google Scholar. Six websites (The Kings Fund, NHS England, NHS Improvement, NICE, the RCGP, and the BMA) were also searched. Titles and abstracts, and full papers were screened for inclusion by one researcher and checked by another. Included papers gave a descriptive account, or described a planned investigation or study of a PCCH in England. One reviewer will extract data into a customized table and assess the quality of included papers using the CASP and MMAT appraisal tools as appropriate, with verification of a 10% random sample by a second member of the team.

#### **Findings**

Our searches yielded 1777 citations, the majority of these from the six organisational websites. Forty full papers were assessed for inclusion and data is currently being extracted from 22 papers (9 national and 12 local evaluations, and one qualitative study). Two indicated evaluations were not received even with the use of FOI requests. The quality of the evaluations seen has been variable. Our assessment of PCCHs was complicated where such hubs have been set up concomitant to one or more other changes in local service delivery, with the changes having been evaluated as a whole. In addition, a PCCH may have been set up under one scheme (i.e. the PCAF) and then continued with modifications under a subsequent/ overlapping scheme with a modified goal such as the development of integrated care. Nonetheless, evidence for the effectiveness of specific PCCHs has been obtained in a small number of evaluations, with some common themes apparent.

#### **Consequences**

Although evidence for the effectiveness of specific PCCHs has been obtained in a small number of evaluations, cost effectiveness and generalisability is less clear. In some evaluations it was not possible to specifically evaluate PCCH(s) as a component within a broader scheme of changes; and not all anticipated evaluations could be obtained. In order to ensure policy goals such as improved access to primary care services can be achieved effectively, it is essential that rigorous evaluation of all relevant changes are made and that such evaluations of publicly funded models are shared publicly.

## **2A.4 Work in progress: Mind the Gap: Understanding the implications of the digital divide on healthcare inequalities during the NHS digital transformation, for patients with long-term conditions.**

**Ben Ainsworth**, University of Bath

*Charlotte Dack, Kate Binnie, Laura Colebrooke, Harry Evans, Sabrina Grant, Gemma Lasseter, Jiedi Lei, Barbara Silarova, Sophie Turnbull*

### **Problem**

The recently published NHS Long Term Plan aims to 'transform healthcare in the digital age' - to deliver world-class healthcare in the 21st century focusing on personalised medicine in GP practices and social care. With 307 million face-to-face patient consultations conducted annually in GP practices, using digital tools such as patient self-management interventions and online consultation tools promise cost-effective solutions to support patients with long-term health conditions. However, people with low socioeconomic status (SES) are more likely to lack the basic digital skills required to benefit from digital transformation. 15.6 million people in the UK have limited or no digital skills, and are more likely to have low SES. Furthermore, people with low SES are 50% more likely to have a long-term health condition, and those with chronic conditions tend to experience more symptoms and worse health outcomes. Utmost care must be taken that the 'digital divide' - between the people who have the digital skills to engage with digital transformation, and those who do not - does not cause or exacerbate healthcare inequalities. The aim of this research is to 1) understand how and when healthcare professionals (HCPs) are using digital healthcare tools with patients and 2) to identify barriers and opportunities that can be addressed in order to prevent digital transformation widening healthcare inequalities.

### **Approach**

Study 1: We are conducting telephone and in-person semi-structured interviews with 15-30 HCPs in primary care, to explore their experiences of using digital healthcare tools for patients in practice and the barriers and opportunities in relation to the digital divide. HCPs will be recruited through snowballing advertising and opportunistically through professional networks. Participants will be purposively sampled in order to ensure appropriate representation of HCPs working in areas of social deprivation. Data Analysis: Interview transcripts will be anonymised. Data will be coded by the research team independently and discussed to reach a consensus. Coded data will be organised and analysed using thematic analysis. Study 2: The results of study 1 will inform the development of a quantitative online survey to explore the key themes (barriers, issues, opportunities etc.) identified in a larger sample of HCPs. HCPs will be recruited using advertising on social media ('snowballing'), and through HCPs networks.

### **Findings**

Current project status: We are currently recruiting and interviewing HCPs until the end of December 2019. Analysis of the data is planned to be completed by February 2020.

### **Consequences**

We plan to discuss our findings with HCPs and healthcare commissioners and with voluntary and community sector organisations. This will help us identify key priorities to conduct further in depth mixed-methods research to explore this topic in more detail, with the ultimate aim of informing materials that will help the digital transformation benefit all patients.

## **2A.5 Improving patient access to primary care through a nurse triage system.**

**Megan Elliott**, University of South Wales

*Sian Jones, Chris Johnson, Carolyn Wallace*

### **Problem**

A General Practice workforce crisis is emerging, with fewer medical professionals training as General Practitioners (GPs) and more GPs working part-time and planning to retire early. This is particularly problematic in Powys, with 80% of current GP partners over age 50 and poor uptake of new GP positions. Optimising the workforce, by changing the way that primary care services are run, could help to resolve the imbalance between GP supply and demand. Use of the nurse triage system in primary care means that only patients who need to see a doctor are seen by the GP, whilst the rest of the patients have their needs met accordingly by other healthcare professionals or services.

### **Approach**

Nurses at the GP practices used the Egton Medical Information Systems (EMIS) Web clinical system to conduct the triage process. An EMIS clinical template was created for the nurses to capture data in the clinical system to log the type of triage, consultation and outcome. From this, an EMIS Web report for triage appointments between December 2015 and November 2017 was used to review the South Powys cluster Nurse Triage pilot, and an EMIS Web report for between March 2017 and October 2017 was used for reviewing Total Nurse Triage. These reports were used to identify:

- » The number of triage appointments where the EMIS clinical template was used.
- » The type of triage encounters.
- » Clinical outcome of the triage encounter.
- » Manual collection of the clinical outcome of each triage consultation if the nurse did not use the EMIS clinical template.
- » Age and sex of patients accessing both of the nurse-led triage services.

### **Findings**

Less than half (45.47%) of triage encounters were referred on for contact with the GP, resulting in avoidance of 13,113 GP appointments over the pilot period. The remainder of patients were offered advice, a prescription or sick note, an appointment with a nurse, a referral for further care or an immediate referral to emergency services. The Total Nurse Triage system was also effective in reducing GP routine appointment waiting times and identifying clinical priorities to be seen urgently.

### **Consequences**

Demand on GPs is reduced by referring patients to GPs only when necessary, and otherwise meeting patient needs through alternative service provision. Patient clinical outcomes data from a two-year pilot were used to evaluate the nurse triage systems. Benefits of the system are:

1. Patients can access immediate support from a nurse, including advice, prescriptions or referrals, without having to wait days/weeks for a routine GP appointment.
2. Reduced pressure on GP services, resulting in shorter waiting times for patients and GPs having more time to dedicate to patients with more complex needs.
3. Total Nurse Triage can identify high-risk individuals who need more urgent attention than a routine appointment, and refer patients for immediate attention where necessary.



## **2B.1 Views and experiences of managing eczema: systematic review and thematic synthesis of qualitative studies**

**Emma Teasdale**, University of Southampton

*Emma Teasdale, Ingrid Muller, Katy Sivyer, Daniela Ghio, Kate Greenwell, Sylvia Wilczynska, Amanda Roberts, Matthew Ridd, Lucy Yardley, Kim S Thomas, Miriam Santer*

### **Problem**

Eczema is a common skin condition that has a substantial impact of quality of life. The main cause of treatment failure is under-usage of topical treatments. Increasingly, qualitative approaches have been adopted to explore people's perceptions of eczema and eczema treatment. Synthesising qualitative studies can provide a comprehensive overview of existing literature, greater understanding of people's perspectives and experiences and can inform clinical practice. We sought to synthesise existing qualitative studies exploring the views and experiences of people with eczema and parents/carers of children with eczema about the condition and its treatment.

### **Approach**

We systematically searched four databases (MEDLINE, PsycINFO, CINAHL and EMBASE) from the earliest date available to February 2019. Papers were selected that primarily focused on views and experiences of eczema and eczema treatments, and barriers / facilitators to eczema self-management. We excluded papers that focused solely on models of health service provision or the views and experiences of health professionals. No language restrictions or date limits were placed on the search. Reference lists of selected papers were searched for additional relevant papers. Two authors and two additional research assistants performed assessment of study quality and data extraction. A thematic synthesis approach was followed to synthesise the findings.

### **Findings**

We identified and synthesised 39 papers (reporting 32 studies) from 13 countries that had explored the views and experiences of 1,007 participants including 405 parents of children with eczema, 252 people with eczema and 350 online forum users. Four main analytical themes were highlighted 1) Eczema not viewed as a long-term condition, 2) Hesitancy about eczema treatments, particularly topical corticosteroids 3) Significant psychosocial impact of eczema not acknowledged by others and 4) Eczema information and advice perceived as insufficient, inconsistent and conflicting. Our findings suggest that people with eczema and parents of children with eczema experience frustration at having to manage a condition that is seen as mundane and insignificant but that has a significant psychosocial impact and is difficult to manage (due to hesitancy about treatment, especially in the long-term and misperceptions about the chronic nature of eczema). This frustration appears to be exacerbated by experiences of conflicting and inconsistent information and advice, from both health professionals or friends, family and others.

### **Consequences**

To our knowledge there has been no previous synthesis of qualitative studies in this area. Our novel work suggests that clinicians need to address eczema treatment beliefs and concerns, and emphasise the 'control not cure' message to support effective ongoing self-management. There is also a need for health professionals to acknowledge the significant psychosocial impacts of eczema and provide clear consistent information and advice or signpost towards credible information. This may address people's concerns that distress caused by the condition is not taken seriously.

## **2B.2 What are the barriers to treatment use amongst parents/carers of children with eczema and young people with eczema: questionnaire survey in primary care, secondary care and social media**

**Katy Sivyver**, University of Southampton

*Katy Sivyver, Daniela Ghio, Beth Stuart, Ingrid Muller, Kate Greenwell, Emma Teasdale, Sylvia Wilczynska, Miriam Santer*

### **Problem**

Eczema is very common in childhood and often persists into adulthood. The main treatments are emollients and topical corticosteroids, although low adherence is a common cause of treatment failure. Previous research has focused on concerns about topical corticosteroids but there may be other barriers to treatment adherence. This study aimed to explore prevalence of barriers and concerns around using both emollients and topical corticosteroids amongst parents/carers of children with eczema and young people with eczema.

### **Approach**

Parents/carers of children aged 12 or less with eczema (N=259) and young people aged 13 to 25 with eczema (N=103) completed a cross-sectional survey through primary care mail-out (N=331), secondary care opportunistic recruitment (N= 20) and through social media (N=11). The survey comprised self-report measures assessing: eczema severity; medication use; sociodemographics; concerns and beliefs about the necessity of treatments (Beliefs about Medicines Questionnaire; BMQ) and common barriers to using treatments (Problematic Experiences of Therapy Scales; PETS). The PETS has four subscales measuring: barriers related to symptoms (e.g. symptoms aggravated by treatment); uncertainty about how to use treatment; doubts about treatment efficacy; and practical problems (e.g. forgetting). The BMQ and PETS assessed both topical corticosteroids and emollients.

### **Findings**

**Emollients:** Preliminary analysis suggested that for parents/carers and young people with eczema the biggest barrier to using emollients was practical (e.g. lack of time, or forgetting): with 61% of parents/carers and 84% of young people reporting some practical difficulties. In both groups, the overall belief that emollients are necessary outweighed concerns about emollients; mean=3.80 (SD:0.82) versus mean=2.43 (SD:0.89) for parents/carers, and mean=3.71 (SD:0.86) versus mean=2.63 (SD:0.94) for young people.

**Topical corticosteroids:** Amongst parents/carers the biggest barrier to using topical corticosteroids were doubts, e.g. 55% reported some doubts that the treatment was right for their child. However, overall beliefs about the necessity of topical corticosteroids and concern scores were equal; mean=3.04 (SD:1.12) versus mean=3.04 (SD:0.95). Compared to emollients, topical corticosteroids were rated as less necessary and concerns were rated more highly. In contrast, young people rated practical difficulties as their biggest barrier to using topical corticosteroids e.g. 87% reported some practical problems (e.g. lack of opportunity). Amongst young people, overall necessity score for topical corticosteroids marginally outweighed concerns about using them; mean=3.32 (SD:0.92) versus mean=3.00 (SD:0.99).

### **Consequences**

These results suggest differences between parents/carers and young people in how they perceive topical treatments for eczema and experience barriers to their use, leading to implications for support needs. Future analyses will examine differences between parents/carers and young people, and how different beliefs/barriers and eczema severity are related to use of emollients and topical corticosteroids.

## **2B.3 – Withdrawn**

## **2B.4 Validation of the RECAP measure of eczema long-term control**

**Alisha Bhanot**, University of Bristol

*Tim J Peters, Matthew J Ridd*

### **Problem**

Research comparing the effectiveness of different eczema treatments is limited by inconsistency in both outcomes assessed and the measures used. HOME (Harmonising Outcome Measures for Eczema) is an international collaboration established to agree a core set of outcomes to be reported in all trials of eczema treatments. RECAP is a patient-reported outcome measure of eczema control, one of four key domains recommended by HOME. This is the first study to independently assess the validity and reliability of RECAP.

### **Approach**

Two online questionnaires (baseline and follow-up) were administered two weeks apart. The online questionnaires included RECAP and validated scales of eczema severity (POEM) and quality of life (PROMIS). People with eczema, or carers of children with eczema, were recruited through social media and by engagement with patient charities/organisations.

### **Findings**

Data from 380 baseline (57.4% adults) and 188 follow-up (58.5% adults) questionnaires were analysed. RECAP had a high (99.7%) completion rate with a good distribution of scores and internal consistency (Cronbach's alpha adults=0.89, children=0.92). Almost half of participants thought RECAP appeared to measure long-term control. Hypothesised associations between RECAP and eczema severity, global self-rated eczema control, quality of life, self-reported change in severity of eczema, and change scores for RECAP and POEM were observed as expected. RECAP had a high intraclass correlation coefficient (adult=0.85, child=0.89). RECAP appears to have good acceptability, validity, test-retest reliability and responsiveness to change. Further work is required to investigate its validity in community and clinic populations.

### **Consequences**

HOME VII consensus meeting took place in Japan in April 2019 and data from this study informed the decision to recommend RECAP as one of two measures of long-term control to be collected in all future trials of eczema treatments. RECAP may also be used in a clinical setting to assess patients' control of their eczema.

## **2B.5 How does the elicitation and exploration of parent treatment preferences effect the conduct of primary care trials with children: a secondary qualitative analysis of baseline visits within the Best Emollient for Eczema (BEE) trial.**

**Grace Boyd**, University of Bristol

*Eileen Sutton, Matthew Ridd*

### **Problem**

Recruitment to randomised controlled trials (RCTs) should only occur when there is ' equipoise ' - uncertainty over the most effective treatment - and when potential recruits have been given sufficient information to make an informed choice to consent to participation. The BEE trial a pragmatic, individually randomised trial evaluating the effectiveness of four types of emollient (lotion, cream, gel, ointment) for childhood eczema. Currently there is no evidence that one formulation is superior and there are wide variations in which emollient are recommended. The lack of clinical consensus adds to parental confusion and likely results in poor disease control. Parents of children recruited to BEE already have prior experiences of emollients but may not understand that equipoise exists around their relative effectiveness or acceptability and may have their own treatment preferences.

### **Approach**

Overall objective: To explore the role of parent and children's treatment preferences in a primary care trial of four different types of emollient for children with eczema. Aims: To use audio-recordings of baseline appointments from the BEE trial to: 1. Examine when and how parent preferences are elicited, expressed and responded to, 2. Explore how the nature or timing of preference elicitation affects perceived understanding of participant in trial, willingness to give consent and subsequent actions, 3. Compare how different research nurses communicate clinical equipoise, random allocation to treatment arms and the importance of adherence to treatment, 4. Identify possible reasons for not adhering to allocated treatment or withdrawal from the trial. A framework will be used to purposively sample participants across each of the three trial centres, including interviews from each research nurse at various points in the trial timeline, to reflect experience and trial staff turnover. Secondary criteria will also be considered including participant age, eczema severity and ethnicity. The interviews will be transcribed verbatim and analysed thematically, using an adapted framework approach. NVivo will be used to facilitate data management and coding.

### **Findings**

Work in progress.

### **Consequences**

To date, qualitative research within trials undertaken in primary care have not specifically focused on prior treatment preferences and how they influence recruitment, the consent process or engagement in the trial. Ultimately understanding how patient preferences impact trials is essential given that ultimately trials may observe a treatment effect, or absence thereof, as a result of patient preferences rather than as a therapeutic effect.

## **2B.6 The Eczema Care Online (ECO) trial RCT protocol: how clinical and cost-effective are two online interventions to support eczema self-care?**

**Mary Steele**, University of Southampton

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### **Problem**

Eczema is a common skin condition characterised by itchy skin and dryness. Eczema can lead to sleep loss and poor quality of life. A common cause of poor control of eczema is the underuse of effective treatments. Reasons for underuse include: concerns about safety of treatments, time consuming treatments, and insufficient or conflicting advice about how to use treatments.

### **Approach**

We have developed two online interventions to support self-care for people with eczema; one for young people aged 13-25 years and one for parents and carers of children aged 0-12 years. The interventions support self-management of eczema using interactive features and tailored content delivered in a series of modules. The interventions have been developed following evidence- (e.g. systematic reviews), theory- (e.g. behavioural analysis, logic model) and person-based (using iterative qualitative methods) approaches. Designed using open-source software tools, these online interventions can be accessed from mobile devices and computers. The trial websites also offer participants the opportunity to complete consent, baseline and all follow-up questionnaires online over a 52-week period. Design: This study comprises two randomised controlled trials to assess the effectiveness of: 1. the ECO intervention in young people with eczema aged 13-25 years, 2. the ECO intervention in parents and carers of children with eczema aged 0-12 years. Both trials will include an internal pilot phase and nested health economic and process evaluation studies. Participants: 400 participants will be recruited into the trial from GP surgeries across three sites; Southampton, Nottingham and Bristol. Recruitment will run until end of June 2021. Participants will be invited to participate if they: are a young person aged 13-25 years or a parent/carer of a child aged 0-12 years, have a recorded diagnosis of eczema in their GP records and have obtained a prescription for this in the past 12 months. Potential participants with a POEM score less than 5 will be excluded as having very mild or quiescent eczema. Intervention and comparator: Participants will be randomised to one of two groups: 1. Intervention: Usual care plus immediate access to the online intervention, 2. Control: Usual care (with access to the online intervention after 52 weeks of follow-up). The primary outcome for both trials will be eczema severity over 24 weeks measured by 4-weekly Patient-Oriented Eczema Measure (POEM) which measures frequency of symptoms. Secondary outcomes include: Quality of Life, long-term eczema control, itch intensity measure, enablement, service use and medication use.

### **Findings**

If these interventions prove to be effective, health professionals would be encouraged to recommend their use as part of standard care.

### **Consequences**

Improved self-care has the potential to benefit patients and carers through improved control of eczema and to the NHS through leading to more appropriate eczema care.

## **2C.1 Domestic violence screening in pregnancy and postpartum in Coventry and Warwickshire; an investigation into barriers.**

**Caitlin Edwards**, University of Warwick

### **Problem**

Domestic violence (DV) is a significant problem in the UK; on average 2 women are killed by their partner or ex-partner every week in England and Wales. Pregnancy is identified as a particularly vulnerable time for women and for 30% of women who experience domestic violence in their lifetime, the first incident occurred in pregnancy. Domestic violence poses a substantial risk of harm to mother and baby. Pregnancy is also a time of increased engagement with healthcare professionals and screening for domestic violence in pregnancy is included in NICE guidelines for antenatal care. In practice it is often found that screening is not routinely implemented and barriers to screening have been researched globally with key themes emerging. These themes have not been explored at a local level in Coventry and Warwickshire. This project intends to explore these barriers locally and further contribute to wider discussion about how domestic violence screening can be supported and facilitated across the UK.

### **Approach**

This project is a qualitative study involving semi-structured interviews with 18 midwives currently employed in antenatal and postpartum care. The midwives were recruited via email with a request to participate in the study and the study was also advertised at two midwifery training days at the local trust. Recruitment was voluntary and involved midwives working in primary and secondary care. The interviews consisted of 6 open questions exploring the themes established in pre-existing literature. The interviews were audio recorded and transcribed verbatim. The data collected was free text and required qualitative analysis. It was coded using both a deductive and inductive method to allow for exploration of unexpected findings coupled with predetermined themes. A framework approach was used.

### **Findings**

This project is ongoing and data analysis is in progress. However key themes have already emerged from the data and will be subject to further analysis. The established themes are 1. Training on DV, 2. Types of questions asked in screening, 3. Factors that influence asking the questions 4. How to respond to a disclosure. There are subthemes within these. The themes concur with the global findings into barriers to screening for domestic violence but there are also some new associated themes highlighting how these barriers come into play at a local level and within the context of the local primary care structure.

### **Consequences**

Although ongoing, the implications for future practice are emerging. There is a clear need for further specific training on domestic violence screening for all of those involved with the care of women in pregnancy. There are substantial structural barriers to screening which could be addressed with further review of practice. More support needs to be in place to facilitate domestic violence screening and this has implications for future practice and training.

## **2C.2 Domestic abuse (DA) amongst female doctor parents: a qualitative study.**

**Emily Donovan**, University of Southampton

*Dr Merlin Willcox and Dr Sara Morgan*

### **Problem**

Violence against women is described by WHO as “a global health problem of epidemic proportions”. Recently there has been a push by the government to support doctors’ wellbeing, recognising that doctors have a particular set of risk factors that make them more vulnerable than the general population to stress. However, there has not been any discussion surrounding the problem of DA amongst female doctors, the lack of support many face and the unique challenges that female doctor victims of DA may face compared to the general public. There is a paucity of data in this area. Of the few studies done, results show a substantially higher prevalence of DA amongst female health professionals compared to the general population. We have conducted a literature review and have not found any studies on this subject other than a personal account of a female doctor on their own experience of DA.

### **Approach**

Semi-structured interviews have been conducted with a 18 participants identified on the Facebook group ‘The Solo Project’, a group for single doctor parents who are single through choice, break up of relationships or bereavement. Further interviews are scheduled to take place before the SW SAPC conference, until saturation of data is reached, at approximately 25-30 participants.

### **Findings**

More than 100 female doctor parents have been identified and are willing to participate in this study. Common themes emerging are: many of the perpetrators of DA are also doctors, women felt unsupported by their work and many felt unable to disclose DA. Very few were aware of NHS policies in place to support employees affected by DA. Some women have felt that a culture of bullying during junior doctor years meant that bullying at home by their partners was normalised. Some felt they have received inadequate support from social services, the courts and other doctors due to their being a doctor and they feel that early opportunities to help and support them leave an abusive relationship were missed. Many have been reliant on charities due to being left in financial hardship after relationship breakups, having to work less than full time due to childcare commitments and costly court fees.

### **Consequences**

There is a lack of publicity regarding the problem of DA amongst female doctor parents, and a lack of support in place for them. The problem of many of the perpetrators also being doctors raises other important issues. More research is needed in this area to understand the scale of the problem, and to put measures in place to support our doctor workforce. The British Medical Association are very interested in this research which may lead to a quantitative study to enable the BMA to allocate financial support to support doctor victims of DA.

## **2C.3 What are women's experiences of the IRIS programme? A thematic analysis of free text quotations from service users for the year April 2018 - March 2019**

**Sophie Lloyd**, University of Bristol

*Sophie Lloyd, Medina Johnson, Gene Feder, Natalia Lewis*

### **Problem**

Identification and Referral to Improve Safety (IRIS) is a general practise-based training support and referral programme aimed at women who are victims of domestic violence and abuse (DVA). The effectiveness associated with IRIS has been previously demonstrated in a randomised control trial (Feder et al. 2011). Since the trial, IRIS has been implemented in over 40 localities in England and Wales as of October 2019. IRISi is a social enterprise which was launched in 2017 to expand commissioning of IRIS across the UK. IRISi carries out annual national reports about IRIS implementation. Reports include a feedback questionnaire with free text comments completed by female patients referred to the IRIS programme. The aim of this student research project was to explore the experiences of the IRIS programme by women who had been referred to an IRIS advocate-educator from general practice.

### **Approach**

We conducted descriptive and secondary thematic analysis (as outlined by Braun and Clark, 2006) of 166 free text comments from IRIS service users who completed a feedback form in the year April 2018 - March 2019. Comments were manually coded. First, we established whether comments were positive, negative, mixed positive and negative, or neutral/irrelevant. Comments classified as neutral/irrelevant were not included in further analysis. Second, we coded comments according to recurring words and topics. We developed 41 codes. Codes with similar meaning were then combined into 11 sub-themes and four themes. Following completion of the qualitative analysis, the frequency of comments per code and theme was calculated in order to identify which experiences were most common amongst service users.

### **Findings**

Almost all service users described positive experiences of the IRIS service. There were only three out of 166 comments classified as negative, and one mixed comment identified in the primary coding. The main themes from the positive comments included: women felt supported by the IRIS service, women felt empowered as a result of IRIS, women felt that they and their children were safer as a result of IRIS and women had improved mental and/or physical health as a result of IRIS.

### **Consequences**

This research of female patients' experiences suggests that IRIS is an effective and powerful mechanism for improving the lives of women who are victims of DVA. In particular, supporting and empowering women to bring about changes in order to increase their safety and improve health. Patient's voices can play an important part in expanding IRIS; this study can be used alongside the IRIS National Report 2019 to demonstrate the positive impacts of IRIS on service users to commissioners and/or clinicians.



## **2C.4 How does the media effect domestic violence in India?**

**Samya Sarfaraz**, University of Bristol

### **Problem**

India was named as the most dangerous country for women with regards to risk of harassment, human trafficking, domestic servitude and the dangers women face from cultural, tribal and traditional practices in 2018. An estimated 27.5 million women experience sexual violence in the sub-continent. The root cause is likely situated within the home, due to a structurally violent society. With widespread exposure from, for example, “daily soaps” on television there are many other factors which may be enforcing traditional gender norms and in turn perpetuating violence. This study aims to understand how different forms of media are influencing society, especially the adolescent populations, shaping their views of relationships and how this has an impact on the prevalence of domestic violence.

### **Approach**

There are two key components of this study. The first is a secondary thematic analysis of a pilot study conducted in Lucknow, Uttar Pradesh in April 2019. The state was chosen as it has the highest number of rape cases in the country and Lucknow as the capital, being majorly affected. Primary qualitative data was collected in the form of 15 semi-structured interviews with teachers, NGO workers and paediatricians to understand why sex and relationship education (SRE) programs are not being implemented in this area, especially as education programs have been highlighted as a key intervention to reduce the rates of domestic violence by the World Health Organization. The second aspect of this study is to review the current literature. Online databases Science Direct, Medline (OvidSP) and Web of Science will be searched, the relevant papers with their findings will be analysed using the Cochrane GRADE system to assess the quality of evidence. These results will be synthesised in order to offer possible policy recommendations on what can be done to improve the current situation.

### **Findings**

The results of the pilot study, strongly highlighted that “media”- in the form of films, books and social networking sites - plays a vital role in how intimate relationships are perceived, established and experienced by adolescents. Additionally cultural stigma around sex and rigid gender roles are preventing the implementation of education programs which seek to promote “healthy relationships”, a vital intervention in reducing domestic violence. Parents are also a barrier as they feel ill equipped to discuss these issues with their children. Currently 10 relevant papers have been identified in the search.

### **Consequences**

The Lucknow Adolescent Health Group part of the Uttar Pradesh branch of the Indian Academy of Paediatrics have been involved with the pilot study and recommendations of this work are currently being passed on to them. Results of this study will also be feedback, especially as they are working on a national level to increase awareness around this topic.

## **2D.1 The At-Risk Registers Integrated into primary care to Stop Asthma crises in the UK (ARRISA-UK) trial: Has the ARRISA-UK intervention led to perceived improvements in the management of 'at-risk' asthma patients in primary care?**

**Saumil Hiremath**, University of Exeter

*Saumil Hiremath, Rachel Winder, Leon Poltawski, Sarah Morgan-Trimmer, On behalf of the ARRISA-UK trial team*

### **Problem**

There are an estimated 334 million asthma sufferers worldwide and most morbidity and mortality due to asthma should be preventable. The ARRISA-UK cluster-randomised control trial is evaluating across 275 GP practices whether a practice-level intervention reduces the proportion of 'at-risk' asthma patients experiencing asthma-related A&E attendances, hospitalisations or death over 12 months, compared to usual care. The intervention involved identifying and adding flags to the records of at-risk asthma patients, and staff representatives completing online training to support implementation of agreed practice-wide actions in response to the flags. The student-led study reported here is part of a wider process evaluation and investigates staff perceptions of the ARRISA-UK intervention, including reported changes in their care of at-risk asthma patients following the intervention.

### **Approach**

The study uses data collected via online questionnaires sent to staff representatives at all participating intervention practices at the end of the 1-year study follow up. Questions were tailored to the participant's role in the practice and comprised Likert-type and free-text responses. Quantitative and qualitative (e.g. content) analyses of data are being conducted to generate descriptive statistics and themes from the responses about the intervention's acceptability, feasibility and impact in managing at-risk asthma patients, and whether practices would continue using the intervention. Data from staff in different roles, and across different types of practices will also be compared to explore any potential differences in perceptions.

### **Findings**

Of the 129 intervention practices remaining in the study and sent a questionnaire (93% of total), 121 (94%) responded, returning 288 questionnaires from staff representatives to date (data collection is ongoing until end of November). Practices returned between 1 and 6 questionnaires, with 27% from GPs, 25% from nurses, 19% from practice managers, 13% from administrative staff, 5% from pharmacists or dispensers, 3% from receptionists, 2% from healthcare assistants and 7% from others. Detailed findings on perceptions of the intervention, reported impacts on the care of at-risk asthma patients and any identified areas for improvement amongst these different staff groups will be presented.

### **Consequences**

**Findings** from this study will shed light on potential mechanisms of action of the ARRISA-UK intervention which can be explored in further analyses when objective data on care processes and outcomes are available. Any identified differences in perceptions between staff in different roles and across different practices can be used to inform how any future implementation of the intervention can be improved to make it feasible, acceptable and useful to all staff groups and practices.

## 2D.2 Retrospective treatment outcome study of treatment seeking for cough in China

**Xiao-Yang (Mio) Hu**, University of Southampton

*Ru-Yu Xia, Yu-Tong Fei, Beth Stuart, Lily Lai, Andrew Flower, Paul Little, Bertrand Graz, Jian-Ping Liu, Michael Moore, Merlin Willcox*

### Problem

This online survey aimed to explore treatment-seeking behaviour for cough in China. In particular, it aimed to identify the patterns of participants' use of antibiotics, modern medicine, Chinese herbal medicine (CHM), and other treatments for cough; to identify which commonly used treatments for cough are associated with the best outcomes in the Chinese population; and to examine whether the use of some patented CHM is associated with a reduction in antibiotic use.

### Approach

Potential participants were recruited through a social media platform (WeChat) with a QR code to the online survey developed using Wen Juan Xing survey. Retrospective clinical information was collected on patients who: either were experiencing or had experienced cough in the last 6 weeks; had taken oral medicines (modern medicine or CHM, either self-care or given by health care professionals), or non-medical approaches to help with the cough. The survey contained key questions on participants' sociodemographics and basic lifestyle information on smoking; and key questions such as: What treatment(s) did you/ the patient use for the last episode of cough? What was the progress (cured/better, same/worse)? How much did each treatment help with the cough symptom? Did you / the patient take antibiotics during the course of cough? Have you / the patient experienced any adverse events during your course of treatment?

### Findings

The survey was circulated with data collection between January and February in 2019. 26756 participants were recruited, among which 25597 (95.7%) experienced acute cough with an average severity score of 5.34 on a 0-10 numerical rating scale. Only a small minority had any symptoms of lower respiratory tract infections and most had symptoms of upper respiratory tract infections. Of these participants, 45.3% used antibiotics, 39.4% used Chinese herbal medicine, 27.1% used non-antibiotic medications, and 20.9% used non-medical interventions. The top five antibiotics used were Amoxicillin, Ceftizoxime, Ampicillin, Cefoxitin and Cefuroxime. Only about 50% actually took antibiotics following recommendation from a doctor. Near half of the participants got their antibiotics from a drug shop (49.4%), followed by public community health centre 32.0%, traditional Chinese medicine hospital 27.1%. 4140/10074 (41.1%) participants had subsequently used antibiotics after taking CHM, while 4730/6947 (68%) after taking non-antibiotic medications.

### Consequences

Although a series of antimicrobial stewardship guidelines and policies have been released in China since 2011, there was a high level of antibiotic use in acute cough, which in the majority of cases was probably unnecessary and potentially harmful. CHM may be a potential way of reducing the use of antibiotics in acute cough and our findings identified a few promising remedies worth further exploration on their effects and safety. A large number of patients seek antibiotics from easily accessible drug shop which is often less strictly regulated and may provide inadequate quality of care. There is a need to regulate drug shop practices of prescribing and selling antibiotics

## **2D.3 – Withdrawn**

### **2D.4 The At-Risk Registers Integrated into primary care to Stop Asthma crises in the UK (ARRISA-UK) trial: How has the ARRISA-UK intervention been experienced and acted upon by different types of GP practices? A longitudinal, comparative case study**

**Charlotte Reburn**, University of Exeter

*Charlotte Reburn, Leon Poltawski, Rachel Winder, Sarah Morgan-Trimmer, On behalf of the ARRISA-UK trial team*

#### **Problem**

Most deaths and hospitalisations due to asthma are preventable. The ARRISA-UK study is a cluster-randomised control trial across 275 GP practices evaluating whether a complex, practice-level intervention reduces the proportion of 'at-risk' asthma patients experiencing asthma-related A&E attendances, hospitalisations or death over 12 months, compared to usual care. The student-led study reported here is being conducted as part of a nested process evaluation of the ARRISA-UK intervention. It aims to describe in depth how the intervention was experienced and acted upon in different practices, and explore how contextual factors (e.g. practice characteristics) influenced this.

#### **Approach**

Intervention practices were supported in identifying and adding flags to at-risk asthma patients' records. Staff representatives (including receptionists, nurses, GPs and pharmacists) participated in online training which culminated in generation of practice-specific action plans for management of at-risk asthma patients that practices were left to implement. For a purposively selected subsample of 4-6 practices that differ in terms of key practice characteristics, quantitative (e.g. training records, Likert-type questionnaire responses) and qualitative data (e.g. action plans, free-text questionnaire responses, focus groups) collected for the process evaluation are being analysed and integrated to (1) describe in depth how these practices engaged with the ARRISA-UK intervention, up to and including writing an action plan, (2) describe practices' implementation of the action plan, and (3) explore any linkages between engagement, implementation and practice characteristics (e.g. practice size, area deprivation). A longitudinal comparative case study approach will generate a detailed picture of different practice experiences and make comparisons between them.

#### **Findings**

Initial findings from the 128 intervention practices which activated flags for at-risk asthma patients (92% of total) indicate wide variations in practice characteristics (e.g. list size 1667-32,868 patients, 1-121 at-risk asthma patients identified), the type and number of staff completing training (median 3, range 1-9) and content of action plans (median 22, range 5-38 action points per practice, most representing agreed actions for receptionists and clinicians in response to flags). The impact of these differences on experiences of the intervention and implementation of action plans were apparent in focus groups with 17 practices. Further analyses and integration of quantitative and qualitative findings from up to 6 of these practices are underway. These case studies will be presented to provide detailed illustrations of differing patterns of engagement with the intervention and implementation of action plans, and how contextual factors have influenced these.

#### **Consequences**

Identified differences in how different GP practices respond to and act upon the ARRISA-UK intervention could impact on its effectiveness. These findings could therefore highlight potential mediators and moderators of patient care and outcomes for exploration when full follow up data are available and indicate ways to improve any future implementation of the ARRISA-UK intervention in different types of practice.

## **2D.5 EXCALIBUR: Treating Acute EXacerbation of COPD with Chinese Herbal Medicine to aid AntiBiotic Use Reduction**

**Tom Oliver**, University of Southampton

*Tom Oliver, Xiao-Yang Hu, Merlin Willcox, Nick Francis, Mike Thomas, Beth Stuart, Gareth Griffiths, Jessima Hunter, Neville Goward, Mike Moore*

### **Problem**

Antimicrobial resistance is rising and is linked to prescribing in primary care. Acute Exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD) accounts for over two million antibiotic prescriptions each year in the UK with over 70% of patients presenting with an AECOPD being prescribed antibiotics. However, many exacerbations are triggered by non-bacterial causes (e.g. viral infections, environmental factors) and there is evidence that many patients in primary care with AECOPD do not benefit from antibiotic treatment. Identifying a safe and effective method of symptom control could possibly reduce antibiotic use for AECOPD. Shufung Jiedu (SFJD), a patented Traditional Chinese Medicine consisting of 8 herbs, is already widely used in China for the treatment of respiratory infections. Preliminary research in China suggests that in combination with usual care it can reduce the risk of relapse and duration of hospitalisation in patients with AECOPD. We think that the addition of SFJD to standard care may aid patients to recover faster and so reduce the number of antibiotic courses prescribed. EXCALIBUR is a Phase III feasibility trial with the objective to determine the feasibility of conducting a full trial of SFJD in addition to best current practice for AECOPD in UK primary care.

### **Approach**

EXCALIBUR is a multicentre, double-blind, randomised placebo-controlled feasibility trial, incorporating a nested qualitative study. Patients, aged  $\geq 40$  years with a clinical diagnosis of COPD, will be invited to participate if they present to their GP with a current AECOPD ( $\leq 21$  days) with at least one of increased sputum purulence, sputum production or breathlessness for which the GP is considering use of antibiotics. 80 participants from 10 GP practices, will be randomised to one of two groups: 1) Control: Usual care plus placebo capsules 2) Intervention: Usual care plus SFJD capsules. In addition to the above, GPs will be able to offer one of 3 antibiotic options: 1) Immediate 2) Delayed 3) None Delayed prescribing would be encouraged when appropriate. Participants will complete a symptom/treatment diary for up to 28 days and quality of life questionnaires at intervals over 12 weeks following randomisation. A medical note review to record subsequent visits to GP with AECOPD and prescribed medication and hospital admissions within 12-week follow up period will be undertaken. Qualitative interviews will be conducted with eligible patients to get feedback from patients on the feasibility of undertaking a full RCT and to determine the barriers to the implementation of a delayed antibiotic prescription and use of herbal medication.

### **Findings**

The trial is scheduled to open to recruitment in April 2020. Trial results will inform the design of the full RCT.

### **Consequences**

If this feasibility study leads to a successful full RCT that shows SFJD is an effective treatment for AECOPD, prescription of antibiotics for AECOPD may decline.

## **2D.6 What clinical signs, symptoms, and investigations are associated with poor prognosis in children with respiratory tract infections?**

**George Edwards**, University of Oxford

*Alastair Hay, Stephen Campbell, Louise Newbould, Rebecca Morris, Gail Hayward*

### **Problem**

Demand for NHS services is at an all-time high and continues to rise. A key contributor is consultations for children with respiratory tract infections (RTI). Understanding which features are associated with poor prognosis in children with RTI is the first step in developing interventions for parents to reduce potentially unnecessary healthcare attendances in this patient group.

### **Approach**

Systematic literature review

### **Findings**

We found 27 studies met our inclusion criteria with a range of settings, populations, conditions, study designs, and outcomes. There were no studies in a home setting. In children presenting with signs of an RTI, we found that respiratory signs, vomiting, fever, signs of dehydration, and low oxygen saturations are associated with an increased odds of hospitalisation. Findings on ear examination was associated with a reduced odds of hospitalisation in this population. In children presenting with bronchiolitis, low oxygen saturation, reduced food and fluids intake, a high respiratory rate, an accessory muscle score  $\geq 6/9$ , and tachycardia were associated with increased odds of hospitalisation. In patients presenting with laboratory confirmed influenza abnormal lung auscultation or x-ray, fatigue, tachycardia, respiratory distress, and shortness of breath were associated with increased odds of hospitalisation. Where associations were found, the absolute risk of hospitalisation remained small. Headache, congestion, and chills were association with a reduced odds of hospitalisation. There was little evidence of signs, symptoms, or investigations associated with death, re-consultation, antibiotic prescription, and prolonged symptoms. The available evidence was of a low to medium quality with a third of studies at risk of bias from confounding.

### **Consequences**

There is limited evidence for factors associated with poor prognosis in children with RTI, and no studies have explored factors which can be assessed by parents in the home. Evidence quality is limited by retrospective design of studies, lack of clarity with regard to prognostic factor measurement, and full reporting of data. Where evidence was available, the absolute risk of poor prognosis was small. Prospective studies asking whether symptoms, such as breathing difficulty or 'a temperature', can predict prognostic outcomes in the home setting would be the most relevant for parents.

### **3A.1 “If it’s less than twenty, you can turn around and say “computer says no””; Clinician perspectives on access to CRP testing in primary care out of hours bases.**

**Sharon Dixon**, University of Oxford

*Margaret Glogowska, Phil Turner, Gail Hayward*

#### **Problem**

Point of care CRP testing has been advised by NICE to support antibiotics prescribing decisions in LRTI. However, implementation has been limited. Antibiotic prescribing in OOH primary care shows an increasing trend with time. CRP may be a useful tool to guide prescribing decisions in a clinical context where doctors are dealing with uncertainty, are unfamiliar with the patients and under pressure to see patients quickly

#### **Approach**

This paper reports on the qualitative component of an on-going mixed-methods evaluation of a study in which point of care CRP testing was made available to clinicians working in Care UK OOH bases. We undertook semi-structured interviews with clinicians working in the out of hours bases with access to the CRP testing, with the use of a topic guide. Interviews were transcribed verbatim and analysed thematically. Ten interviews have been conducted to date, with further interviews planned. To date, we have spoken to 8 GPs and 2 ANPs, including those who use CRP testing never, sporadically and often.

#### **Findings**

Clinicians reflected on the role of CRP in supporting clinical assessment, with perspectives ranging from CRP test results supporting confidence in decision making, to uncertainty about how CRP test results sit within the hierarchy of components comprising clinical assessment. Clinicians who used the tests explained how the results supported communication with patients, in the context of antibiotic stewardship. CRP results offered a neutral way for the clinician to decline to prescribe antibiotics, especially when the patient wanted or expected antibiotics (“it’s difficult to fight with concrete science”). We heard accounts about how the guidance about what to do in the CRP middle range supported the greater use of delayed prescriptions. Challenges to using CRP testing included the difficulty of maintaining training and awareness amongst a varied and variable staff team, who work irregular shifts across different bases, the pressures of time and workload in OOH settings, and concerns about leaving patients in clinical rooms to use a central machine. Having an HCA to do the test, or desktop POC equipment in each room were identified as changes that could mitigate against this.

#### **Consequences**

Uncertainty about the value (and potential risks) of CRP testing in a holistic clinical assessment limited uptake for some clinicians we spoke to. Training, resource and time-pressure issues reduced usage for some, which could be potentially mitigated against, including HCA support to do the test, desk-top equipment, and strategies for on-going training. The clinicians we spoke to valued having CRP results as a tool support their decisions to not prescribe antibiotics, in the face of what they perceived as patient expectations: “it has taken the no-antibiotics sting out of a lot of consultations”. This could be a powerful motivator for supporting uptake.

### **3A.2 To what extent do patients and GPs have a shared understanding of blood testing in primary care?**

**Jessica Watson**, University of Bristol

*Chris Salisbury, Willie Hamilton, Penny Whiting, Jon Banks*

#### **Problem**

Rates of blood testing are increasing in primary care, with significant implications for NHS costs and GPs workload. Increased testing rates are not mirrored by increased rates of disease, suggesting non-medical reasons such as patient or GP expectations may be important. There is increasing awareness about the importance of shared decision making in medicine, but most research focuses on treatment decisions rather than investigations. The aim of this research is to compare patients' and GPs' experience, expectation and understanding of testing, in order to improve communication and promote patient engagement.

#### **Approach**

Six general practices were recruited, reflecting a range of socioeconomic and demographic characteristics. Patients were recruited at the time of blood testing by phlebotomists or GPs. Qualitative interviews were undertaken with patients at two time points: (a) at or soon after their blood test and (b) after they had received their test results. We also undertook interviews with the patients' GPs who requested the tests. This gave us paired data which enabled us to examine areas of congruence and dissonance between GPs' and patients' expectations, experience and understanding of testing.

#### **Findings**

22 patient and 21 GP interviews have been either booked or completed, out of a target of 30 patients and 30 GPs. Early findings indicate a lack of shared understanding and a mismatch between patients' and doctors' expectations of testing. Patients are frequently unaware which tests have been done and why. Patients have high expectations of tests; expecting them to provide diagnostic certainty without mistakes, whereas doctors expectations are more modest. Whilst doctors tend to be reassured by normal results, patients with ongoing symptoms may find normal results unhelpful. Patients' expectations that tests will provide answers can be frustrated by a lack of communication about test results.

#### **Consequences**

The results have implications, not just for shared decision making, but more fundamentally, informed consent. Misunderstanding and a lack of communication around testing and test results can lead to uncertainty, anxiety and frustration for patients. Promoting a shared understanding and shared decision making could help rationalise testing, potentially reducing unnecessary investigations and improving patient-centred care.



### **3A.3 Non-contact thermometers: a method comparison study assessing agreement with electronic axillary and infrared tympanic thermometers.**

**Gail Hayward**, University of Oxford

*Jan Y Verbakel, Fatene Abakar Ismail, George Edwards, Kay Wang, Susannah Fleming, Gea A Holtman, Margaret Glogowska, Elizabeth Morris, Kathryn Curtis, Ann van den Briel*

#### **Problem**

Temperature measurement is commonly performed in children aged 5 and under in primary care and is an important component of guidelines for management of acute illness in this age group. Currently either axillary or tympanic thermometers are used. Non-contact infra-red thermometers (NCITs) have the potential to reduce both the distress of the child and the risk of cross-infection. However our systematic review found limited evidence of comparative accuracy to standard methods. We aimed to compare two different NCITs to axillary and tympanic thermometers in children aged 5 and under presenting to primary care.

#### **Approach**

We performed a methods comparison study comparing 2 different NCITs (Thermofocus and Firhealth) to axillary and tympanic thermometers in children aged 5 or under attending the GP with an acute illness. Measurements were made in a pre-determined order using a random number generator. We evaluated reproducibility and sensitivity for fever of 38 °C or more using the axillary thermometer. Parents and children used scales to rate their discomfort.

#### **Findings**

401 children were recruited with median age 1.6 years (IQR 0.79-3.38). Our primary outcome was the comparison between the Thermofocus NCIT and axillary thermometer. The mean difference between the two methods was -0.14°C (95% CI -0.21 - (-0.06)), with the lower limit of agreement being -1.57°C (95% CI -1.69 - (-1.44)) and the upper limit 1.29°C (95% CI 1.16 - 1.42). Similar agreement was seen for the Firhealth NCIT. The Thermofocus had a sensitivity for fever (38°C using axillary measurement) of 29.3% (95% CI 16.1 - 45.5). The Firhealth had a sensitivity of 4.9% (95% CI 0.6 - 16.5). Reproducibility was acceptable for both NCITs. The majority of parents found all methods acceptable, although discomfort ratings were highest for the axillary thermometer.

#### **Consequences**

Temperature measured using an NCIT can vary by more than 1°C compared with measurements from currently recommended thermometer types, and sensitivity for fever was poor for both non-contact thermometers. However the agreement between axillary and tympanic thermometers and core body temperature has also been shown to be poor. There is a clear opportunity for new technology to improve the accuracy of non-invasive temperature measurement.

### **3A.4 Rapid antigen test to detect strep A infection in patients with sore throat: evidence from a pathfinder NHS Sore Throat Test & Treat service in community pharmacies in Wales**

**Efi Mantzourani**, Cardiff University

*Rebecca Cannings-John, Harry Ahmed, Kerry Hood, Anne Marie Cunningham, Emma Williams, Cheryl Way, Andrew Evans*

#### **Problem**

Background: A pathfinder Sore Throat Test and Treat service (STTT) was rolled out in 56 community pharmacies in Wales in November 2018, as part of a wider approach to safely rebalance management of uncomplicated conditions from GPs to community pharmacists. STTT included clinical assessment of patients 6 years and over, using clinical scoring criteria (Centor and/or FeverPAIN), a rapid antigen detection test (RADT) to detect strep A infection when threshold scores are met, and allowance for antibiotic supply in the pharmacy, in line with NICE guidance<sup>1</sup>, if the test is positive. Aim: To explore the added value of RADT for group A streptococcal infections in people with a sore throat, as part of the STTT service in community pharmacies

#### **Approach**

Methodology: Secondary data analysis of STTT consultation data between November 2018 (date the service went live) and March 2019, obtained from Choose Pharmacy, the national IT platform used in 98% community pharmacies in Wales to record services. Data were analysed using Microsoft Excel®. No ethical approval was required for the study.

#### **Findings**

Results: A total of 1,235 patients met the clinical scoring criteria to be offered RADT within the study period. A total of 901/1235 patients (73%) did not receive an antibiotic supply as they had a negative result from their RADT. Of the 334 (27%) that did receive an antibiotic this rate varied by their clinical score from 12% (58/481) in those with FeverPAIN score of 2 to 71% (60/84) in those with a FeverPAIN score of 5. When we only consider Centor score 3 or 4 and FeverPAIN score 4 or 5, the corresponding number is 181/368 patients (49.2%).

#### **Consequences**

Conclusion: Data from the first five months of the pathfinder service suggests that almost half of the patients who would have been offered an immediate antibiotic or back-up antibiotic prescription according to NICE guidance, were not offered antibiotics as the RADT results were negative. This preliminary data suggests that RADT may play a role in antimicrobial stewardship, by reducing the number of antibiotics prescribed for sore throat symptoms.<sup>1</sup> NICE guideline [NG84]. Sore throat (acute): antimicrobial prescribing. January 2018. Available at: <https://www.nice.org.uk/guidance/ng84>

### **3A.5 Impact of a Pathfinder Sore Throat Test & Treat service in community pharmacies on GP sore throat related consultation rates**

**Efi Mantzourani**, Cardiff University

*Rebecca Cannings-John, Haroon Ahmed, Kerry Hood, Andrew Evans, Emma Williams, Cheryl Way*

#### **Problem**

Workload in General Practice has increased substantially over the last decade. As a result, there is increasing interest in widening the roles of other primary care health professionals who can safely and effectively meet the needs of patients who would traditionally see a GP. Community pharmacists are key members of the primary care healthcare team and can help to provide sustainable services for a range of minor illness presentations. One of the conditions whose management could be transferred to community pharmacies to ensure timely access to services, is uncomplicated sore throats. A pathfinder Sore Throat Test and Treat service (STTT) was rolled out in 56 community pharmacies in Wales in November 2019. One of the aims was to safely rebalance management of uncomplicated sore throats between GPs and community pharmacies. The aim of this study was to explore the feasibility of measuring changes in sore throat consultation rates in general practice, in areas where the STTT service was piloted.

#### **Approach**

A national GP audit tool, Audit+, was used to obtain data for Read-coded GP sore throat related consultations, between November 2018-March 2019, for one GP practice adjacent to four community pharmacies in which the STTT service was available (list size=10220). Data were analysed using Microsoft Excel® and IBM SPSS® v23 to obtain descriptive statistics and undertake more detailed statistical comparisons. The study was registered with NHS Research and Development departments.

#### **Findings**

It was feasible to extract sore throat consultation data from the GP practice prescribing system using Audit+. Monthly sore throat consultation numbers were used to estimate the average consultation rate per month for the study practice before the introduction of STTT. Sore throat consultations rates decreased from 0.71/1000 patients in March 2018 (prior to STTT) to 0.36/1000 patients in March 2019 (4 months after STTT). The number of sore throat related GP consultations during the study period was lower than the lower band of the 95% confidence interval band calculated from the average consultation rate per month for 2014-18, per 1000 patients (average for March: 0.72).

#### **Consequences**

Our findings suggest it is feasible to look at individual case studies of Read-coded consultations in GP surgeries. Preliminary data suggests that the new service may have a role in rebalancing management of uncomplicated sore throats within primary care. We will build on this work using interrupted time series methods and locality level data to look at trends in quinsy rates and sore throat consultation rates before and after implementation of STTT.

### **3A.6 Diagnosis of peripheral arterial disease in primary care: a survey of general practitioners in England**

**Judit Konya**, University of Exeter

*STJ McDonagh, G Abel, K Boddy, CE Clark*

#### **Problem**

Lower extremity peripheral arterial disease (PAD) has a global prevalence of 10%. PAD is associated with reduced quality of life and physical functioning, and may lead to critical limb ischaemia, limb loss or death. PAD therefore represents a substantial economic and health care burden. The condition is under-diagnosed, perhaps due to the variability of leg symptoms presented. The EuroPAD group comprises PAD guideline authors, vascular and primary care experts from 10 European countries. This group conceived and developed a survey for a Europe-wide assessment of current primary care approaches to detecting and monitoring PAD. This study seeks to understand general practitioners' (GPs) usual approaches to the diagnosis and follow-up of PAD in England, using an online, country-specific, version of the EuroPAD survey. We aim to survey the current practices of GPs in England in suspecting, assessing and diagnosing PAD. We will compare aggregated responses with current standards and guidelines, explore trends in responses according to practice demographics, and link responses to current Quality and Outcomes Framework (QOF) indicator achievements for PAD, to describe factors associated with high or low-level achievement.

#### **Approach**

The online survey will be distributed via email to GPs using various means: the local Clinical Research Network (CRN), newsletters for Royal College of General Practitioners (RCGP) Faculties, Local Medical Committees and the RCGP Rural Forum Google Group. Postal reminders may also be distributed. We aim to finish data collection by March 2020. Responses will be summarised as either mean and standard deviations, or median and inter-quartile ranges according to normality of the data. Demographic and QOF characteristics of responding and non-responding practices will be compared using t-tests, Mann-Whitney or  $\chi^2$  tests, as appropriate. QOF data will be compared with survey responses using Pearson's correlation coefficients or t-tests for unadjusted comparisons, and adjusted for practice-level demographics using mixed effects logistic regression. We aim to obtain 300 responses, which will give 90% power ( $p < 0.05$ ) to detect a difference of 3.5 % between QOF reporting of anti-platelet prescribing as one indicator of care.

#### **Findings**

The survey will open in November 2019; analyses and results will be presented at the conference.

#### **Consequences**

Our findings will offer insight into current PAD management in English primary care settings. These results will be merged with other national surveys led by the EuroPAD investigators and contribute to a Europe-wide report that can guide future policy. The results will provide an evidence base to inform the design of future interventions with the aim of improving approaches to diagnosing and monitoring PAD. We will discuss our findings with our Patient Participation (PPI) Group prior to dissemination to ensure that interpretation and presentation of results are meaningful to service users.

### **3B.1 Primary care streaming in emergency departments and perceived mechanisms for effectiveness**

**Michelle Edwards**, Cardiff University

*Rebecca Sherlock, Alison Cooper, Freya Davies, Adrian Edwards*

#### **Problem**

To manage increasing demand on UK emergency and unscheduled health care services, policy has promoted the streaming of patients presenting to emergency departments (EDs) with non-urgent problems to primary care services. Currently little is known about the different contexts in which primary care streaming is operated, its effectiveness in directing patients to the most appropriate clinician and the impact on flow and waiting times.

#### **Approach**

Using realist methods we aimed to explore the effectiveness of primary care streaming. We visited 13 hospitals and conducted non-participant observations and semi-structured interviews with staff and patients. Data consisted of field notes and audio-recorded interviews. Transcripts were coded in NVivo v12 and analysed to produce context, mechanism and outcome configurations to help explain how streaming works in different contexts and what mechanisms are perceived to lead to effectiveness outcomes.

#### **Findings**

Primary care streaming was perceived to help improve flow and waiting times in some settings because GPs saw patients with minor illness and made quick assessments without the need for investigations, enabling ED doctors to focus on more acutely unwell patients. In other settings where there was low demand from patients with primary care problems, there was less perceived improvement on flow. In more integrated services, with a shared governance structure and where there were good working relationships between ED and primary care clinicians, streaming was perceived to be more effective in terms of patients being streamed to the most appropriate clinician, GPs often saw a wider range of patients. More experienced nurses working in a streaming or triage role were perceived to be effective in streaming patients to the most appropriate clinician because they had more skills and knowledge to support clinical decision-making. Nurses who had knowledge of primary care and of the skillset of primary care clinicians working in the ED were also perceived as more effective. Some higher band nurses also improved waiting times and flow because they could prescribe, order X-rays, discharge patients or redirect them to their own GP. Clear guidance and training was perceived as essential in streaming patients to primary care clinicians and a lack of guidance and miss-matched governance where the services were provided and managed separately was found less effective. Less experienced nurses with less knowledge, skills and confidence to support streaming decisions were perceived as less effective in streaming patients to the most appropriate clinician and took longer in undertaking streaming assessments, contributing to delays in waiting times and flow.

#### **Consequences**

Effectiveness of streaming relies on experienced nurses, using clear guidance based on the local service, support and training. An NHS Trust managed service, a shared governance structure and a good working relationship between the ED and primary care clinicians improved effectiveness.

### **3B.2 How are paramedics deployed in general practice and what are the perceived benefits and drawbacks? A mixed methods scoping study**

**Matthew Booker**, University of Bristol

*Schofield B, Voss S, Proctor A, Bengner JR, Coates D, Kirby K, Purdy S*

#### **Problem**

General Practice in the United Kingdom faces continuing challenges to balance a workforce shortage against rising demand. The NHS England General Practice (GP) Forward View proposes development of the multi-disciplinary, integrated primary care workforce to support front-line service delivery, including the employment of paramedics. However, very little is known about the safety, clinical or cost effectiveness of paramedics working in general practice. Research is needed to understand the potential benefits and drawbacks of this model of workforce organisation. The aim of this study is to understand how paramedics are deployed in general practice, and to investigate the theories and drivers that underpin this service development.

#### **Approach**

This was a mixed methods study using a literature review, national survey and qualitative interviews. The study was conducted in three phases: 1) A mapping exercise which involved a systematically search scoping review of the literature review and web-based survey of paramedics, and staff working with them, in general practice. 2) Meetings with Key Informants to locate existing theories about the intended outcomes of deploying paramedics in general practice. 3) Semi-structured qualitative interviews with stakeholders to examine the underlying assumptions about how different approaches to paramedic deployment are intended to work.

#### **Findings**

There is very little evidence on the safety and cost effectiveness of paramedics working in general practice. The findings from this study indicate significant variation in the types of models adopted and disparity in a number of areas. The majority of models reported include home visits as a key feature. However, the type of patients seen and conditions treated vary significantly. Nonetheless, there is a largely positive view of this development and a perceived reduction in GP workload. However, some concerns centre on the time needed from GPs to train and supervise paramedic staff.

#### **Consequences**

The contribution of paramedics in general practice has not been fully evaluated. There is a need for research that takes account of the substantial variation between service models to fully understand the benefits and consequences for patients, the workforce and the NHS.

### **3B.3 Are National Early Warning Scores calculated in primary care associated with clinical outcomes during subsequent secondary care admissions?**

**Lauren Scott**, University of Bristol

*Niamh Redmond, Alison Tavare, Hannah Little, Seema Srivastava, Anne Pullyblank*

#### **Problem**

The National Early Warning Score (NEWS) is calculated from a series of physiological observations and was developed as a standardised measure to aid recognition of patient deterioration. NHS England has mandated the use of NEWS, more recently NEWS2, in acute settings, and recommended its use in pre-hospital settings including primary care. However, there is reluctance from General Practitioners (GPs) to adopt NEWS/NEWS2 as there is little evidence about its effectiveness in this setting. This study aimed to assess whether NEWS calculated and communicated by GPs at the point of referral into hospital was associated with speed of movement through the care pathway and clinical outcomes in secondary care.

#### **Approach**

Between July 2017 and December 2018, data were prospectively collected for 13,047 GP referrals into acute care. Multivariable linear and logistic regression models were used to assess associations between NEWS values recorded by GPs and 1) process measures including time from referral to hospital arrival and time from hospital arrival to medical review and 2) clinical outcomes including length of hospital stay (LOS), Intensive Care Unit (ICU) admission, sepsis and mortality.

#### **Findings**

Overall, 42% of patients had NEWS=0-2, 17% had NEWS=3-4, 11% had NEWS=5-6, 8% had NEWS=7+ and 22% had NEWS=NR (not recorded). Higher NEWS values were associated with increased LOS, ICU admissions, sepsis (suspected and diagnosed), and mortality (2-day and 30-day); decreased time from referral to arrival for patients conveyed by ambulance; and decreased time from arrival in hospital to medical review. The relationship between NEWS and conveyance time for patients using transport other than ambulance was unclear. On average, for patients referred without a NEWS value, most clinical outcomes were comparable to patients with NEWS=3-4; times from hospital arrival to medical review were longer for patients with NEWS=NR than for any calculated NEWS value.

#### **Consequences**

Our findings that NEWS values calculated in primary care are associated with clinical outcomes in subsequent secondary care admissions should go some way to increase GPs' trust in using NEWS (now NEWS2) as a common language to communicate patient acuity to ambulance and hospital staff. GPs should be reassured that when used in conjunction with clinical judgement, calculating NEWS in primary care can improve clinical processes of assessment and treatment for patients.

### **3B.4 PERCH - Preliminary Exploration of the Role of paramedics in Care Homes**

**Mark Kingston**, Swansea University

*Alison Porter, Leigh Keen, Stephanie Green*

#### **Problem**

Almost half a million people live in care homes in the UK. General practices have a duty to deliver primary care for residents, but many struggle due to high demand and staff shortages. Meanwhile, ambulance services are seeing an increase in 999 calls from care homes. In addressing these challenges, one emerging approach is to involve paramedics in proactive support to care homes, part of a larger scale shift towards paramedics undertaking non-emergency primary care and community based work. Yet such major workforce changes require urgent evaluation to understand implications for care home residents and staff, and for health services. Care homes are an under-researched environment, despite high health and social care needs of residents. We aimed to explore the role of paramedics in non-emergency care in care homes to support the design and delivery of portfolio research in this emerging, and important, area.

#### **Approach**

- We convened a Research Development Group of care home, ambulance service, health board, primary care, public and academic representatives, and:
- Conducted fact finding visits and calls to sites where paramedics already provide non-emergency care to care home residents.
- Examined data on 999 calls to the Welsh Ambulance Services Trust (WAST) from care homes.
- Surveyed ENRICH (Enabling Research in Care Homes) Network care homes in Wales and the West Midlands to seek views on the potential role of paramedics working proactively in care homes.
- Held a stakeholder workshop to identify and explore the issues that stakeholders deemed important in this work.

#### **Findings**

We identified multiple sites in England and Wales where paramedics provide planned and proactive rather than emergency care in care homes. Operating models varied with paramedics employed by ambulance services, health boards or general practices. Data on 999 calls from over 300 care homes in Wales confirmed call rates of up to 20 per month per home and high conveyance rates (over 60%). Our survey, with responses from 50 managers confirmed interest in the approach. Managers thought paramedic skills were well suited to assessing residents, identifying issues, improving care and avoiding admissions. They foresaw benefits to inter-professional working, clinical support and person centred care. However, they raised concerns over professional boundaries and clarity of roles and policies. These messages were reinforced in our stakeholder workshop, where the value of timely rapid assessment was highlighted, along with challenges of funding and governance.

#### **Consequences**

The role of paramedics is shifting rapidly into dedicated primary and community work, including care home settings. It is imperative that research is aligned and informs evidence based practice. We plan to take forward the findings by developing PERCH2, a feasibility study evaluating the impact of paramedics working in this way.



### **3B.5 Senior clinical and business managers' perspectives on how different funding mechanisms and models of employing GPs in or alongside EDs influence wider system outcomes. Qualitative Study.**

**Mazhar Choudhry**, Cardiff University

*Pippa Anderson, Michelle Edwards, Alison Cooper, Adrian Edwards*

#### **Problem**

Emergency Departments (EDs) across England and Wales are facing increasing pressures, with attendances rising and waiting time targets being missed. In England, NHS policy has been implemented to tackle this by introducing GPs in or alongside EDs to see non-urgent patients and free up ED staff. This policy was backed by £100 million in capital investment. However, wide variation exists in the funding streams utilised for the continued operational costs of these services, how they are operationalised and what outcomes they achieve.

#### **Approach**

We are completing a qualitative study exploring the perspectives and experiences of senior clinical and business managers to explore and examine the influences of different funding models of employing GPs in or alongside EDs on quality of care, targets and wider system outcomes. 13 Type 1 EDs in England and Wales, operating 3 different models or controls, were selected for the study. We purposively sampled senior clinical and business managers, defined as those within each site with an intimate knowledge of the funding structures in the primary care services. Data from 30 respondents at 11 sites have so far been collected. 30-60-minute semi-structured interviews of respondents, either in groups or one-to-one, conducted by a single researcher, were transcribed and are being coded using NVivo. Data will be thematically analysed.

#### **Findings**

The results of this student BSc project will be available by March 2020. Primarily, the study will examine perspectives on different funding models and how these are thought to influence wider system outcomes. As secondary outcomes the study will examine the role that sources of staffing play in influencing these outcomes, and also report on the experiences, challenges and responses in the services from the different models of employing GPs in or alongside EDs.

#### **Consequences**

**Findings** will feed into a wider study commissioned by the National Institute of Health Research (NIHR) to build an evidence base (also patient experience, cost-effectiveness, patient safety) around this policy and inform NICE guidelines and healthcare policy.

### **3C.1 Characteristics, service use and mortality of clusters of multimorbid patients in England: a population-based study**

**Rupert Payne**, University of Bristol

*Yajing Zhu, Duncan Edwards, Jonathan Mant, Steven Kiddle*

#### **Problem**

Multimorbidity is one of the principal challenges facing health systems worldwide. To help understand the changes to services and policies that are required to deliver better care, we investigated which diseases co-occur and how combinations are associated with mortality and service use.

#### **Approach**

We used linked primary and secondary care electronic health records contributed by 382 English general practices to the Clinical Practice Research Datalink (CPRD). The study includes a representative set of multimorbid adults (18+ years old) with two or more long-term conditions (N=113,211). Clinical diagnoses were based on a list of 38 conditions (Barnett, 2012). A random set of 80% of the multimorbid patients (N=90,571) were stratified by age and clustered using latent class analysis, with consistency of results checked in the remaining 20% of multimorbid patients (N=22,640). Associations between multimorbidity clusters, demographics and outcomes were quantified using generalised linear models.

#### **Findings**

Multimorbid patients aged 18-44 years old with psychoactive substance misuse were found to have a mortality rate 18 times higher than their non-multimorbid peers. Three distinct types of cardiovascular-related clusters were identified in patients 65+ years old, related to cardiovascular risk factors, established cardiovascular disease, or cardiovascular disease with chronic pain and mental illness; the latter cluster had the highest rates of primary care consultations. The majority of 85+ year old multimorbid patients belonged to a cluster with low service use and mortality in that age range. Clusters characterised by physical-mental health co-morbidity, and respiratory disease with co-morbidity, were common across all age strata. A physical-mental health cluster of 65-85 year olds had a higher 2-year mortality rate (8.4%) than a cardiovascular risk factor cluster (4.7%).

#### **Consequences**

This work has highlighted major targets for public health and healthcare, including younger patients with psychoactive substance misuse whose risk factors make them potentially amenable to intervention. The association between older age, multimorbidity and mortality seems to be related to cardiovascular disease, pain, respiratory disease and their comorbidities.

### **3C.2 'Bridging Gaps'- use of a coproduction approach to improve experiences accessing primary care for women with complex needs**

**Helen McGeown**, University of Bristol

*Lesley Wye, Michelle Farr, Helen Cramer, Lucy Potter (PI)*

#### **Problem**

Women with complex needs, such as addiction, homelessness, and domestic and sexual violence, experience extreme health and social inequality and have low engagement with mainstream health services. There is little existing research on effective interventions to target these issues, and research has thus far been led by the agendas of commissioners, clinicians and researchers rather than those of women with complex needs themselves.

#### **Approach**

**Intervention:** The project was developed through collaboration between women with complex needs, clinicians, and academics using a coproduction approach. Dr Lucy Potter is an academic GP working at a specialist health and welfare organisation for women with complex needs. Women using this service felt that it would be helpful to 'come together' to discuss their experiences of accessing mainstream healthcare and how these could be improved. This led to creation of a peer advocacy group of 10 women with complex needs. Along with Dr Potter, Dr Lesley Wye was invited to participate in the group, bringing expertise in coproduction and health services research. Preliminary groupwork involved women meeting with 'friendly' GPs and commissioners to learn more about health services. The group also shared their experiences of accessing GP care, which involved being treated in a 'prejudiced' and 'judgmental' way. They decided to tackle this by developing and delivering interactive educational sessions for GPs and GP receptionists in a project titled 'Bridging Gaps'. Sessions aim to develop mutual understanding and foster more positive interactions between primary care providers and women with complex needs. The group will also produce a training video for health and social care professionals. Support in development of these interventions is currently being provided through 'storytelling workshops' delivered by Clare Murphy, a professional storyteller with experience of working with excluded groups. **Evaluation:** Ethnographic observation of groupwork (including the storytelling workshops), and the educational sessions in primary care will be carried out by an evaluation team consisting of Dr Helen Cramer and Dr Michelle Farr (experts in qualitative health and social science research), and Dr Helen McGeown, a GP Academic Clinical Fellow. Interviews will be held with women in the group and GP staff receiving the educational sessions. Findings will feed into a 'social impact framework', to capture changes arising from co-production in terms of the impact on individuals, groups and organisations.

#### **Findings**

The women have thus far developed their understanding of health services, their confidence in sharing their stories, and their sense of agency in creating change.

#### **Consequences**

We hope that use of the social impact framework will demonstrate the value of a coproduction approach as a way to meaningfully involve service users as drivers of multi-level change. This ranges from individual empowerment to potential whole systems change, and improved equity of primary healthcare provision.

### **3C.3 What is the role of primary care in reducing the decline in physical function and physical activity in people with long-term conditions? Findings from realist synthesis involving theory-building workshops, systematic and iterative literature searches**

**Rebecca-Jane Law**, Bangor University

*Law, R; Williams, L; Burton, C; Hall, B; Langley, J; Partridge, R; Hiscock, J; Morrison, V; Lemmey, A; Cooney, J; Lovell-Smith, C; Gallanders, J; Williams, N*

#### **Problem**

Declining physical function and physical activity in people with long-term conditions can cause deteriorating physical, social and psychological health, and reduced independence. In line with the renewed declaration from the World Health Organisation, primary care is well placed to empower individuals and communities to reduce this decline. However, current evidence suggests the best approach is uncertain and the complexities of the needs of people with long-term conditions and of primary care service delivery requires further investigation. Therefore, this study aims to unpick this complexity and develop evidence-based recommendations about how primary care can facilitate improved physical function and physical activity for people with long-term conditions.

#### **Approach**

Realist evidence synthesis combining evidence from varied sources of literature with the views, experiences and ideas of stakeholders. Established realist methods will develop and refine theories about improving physical function and promoting physical activity for people with long-term conditions. In particular, what works (or does not work), for whom and in what circumstances. We have used LEGO® SERIOUS PLAY® as a participatory method for two theory-building stakeholder workshops, enabling expression and creativity through building models and sharing. These included 13 health and social care professionals, 10 people with long-term conditions and the two lead researchers. We have also incorporated expertise and perspectives from the public contributors on our study team as well as members of our international external Project Advisory Group. The initial theory areas have informed the literature review and the programme theories developed from the literature will inform three co-design workshops for a primary care service innovation.

#### **Findings**

Initial overarching theory areas from the stakeholder workshops include the promotion of physical literacy and organising care according to the International Classification of Functioning. These can be applied at the level of the individual patient, and further sub-divided into physical, psychological and social components, the individual health professional, the practice, and then wider programmes and localities. For example, value and responsibility for physical activity and function, enjoyment and identity, as well as social support have been identified so far. Following initial title and abstract screening of 20,436 articles, the literature search has identified 2069 articles, which are being selected for inclusion according to relevance and theoretical richness. Selected studies are being mapped against our initial theory areas from which we will develop our final programme theories that will be described in terms of contexts, mechanisms and outcomes.

#### **Consequences**

This work is important because shifting the emphasis of long-term condition management away from the diagnosis and categorisation of disease towards the promotion of physical activity has the potential to improve physical functioning and independent living. It will have important implications for practice, primary care education and policy.

### **3C.4 What are the challenges to managing multimorbidity in the elderly, from both GP and patient perspectives?**

**Emily Brown**, University of Exeter

*L Poltawski, E Pitchforth, S Richards, J Campbell, J Butterworth*

#### **Problem**

The prevalence of multimorbidity in the elderly is high and is predicted to rise. Providing clinical care to this patient group places a large demand on the healthcare system. Shared-decision making is a recognised feature of good quality clinical care. However, older patients are often less involved in decision-making about healthcare compared to younger patients. We explored the challenges of managing multimorbidity in the elderly, from the perspectives of GPs and patients, with a focus on shared-decision making.

#### **Approach**

Qualitative focus groups with older patients with multimorbidity and with GPs. Eight patients and eight GPs from four GP practices in Devon. A facilitator guided discussion in separate patient and GP focus groups. Constant comparative technique with a deductive framework, coding inductively for analysis.

#### **Findings**

GPs expressed concerns around the complexity of managing multimorbidity in the context of clinical uncertainty and a perceived scarcity of relevant guidelines. They felt pressure to use condition-specific guidelines and feared medico-legal consequences if they didn't. Both GPs and patients identified time-pressure and a lack of continuity of care as potential barriers to shared-decision making, and acknowledged the importance of the doctor-patient relationship in overcoming perceived barriers. Further barriers to shared-decision making were identified as a lack of patient empowerment, GP reluctance to allow shared-decision making, unconsciously incompetent GPs in regard to shared-decision making and patient perception that their GP did not allow shared-decision making.

#### **Consequences**

The management of multimorbidity in the elderly requires 'the art of medicine'. However, in an age where evidence-based medicine is prioritised, and there are difficulties with access to primary healthcare, GPs require further support to provide good quality care for this vulnerable patient group. Development is needed in the understanding and practise of shared-decision making by both GPs and the elderly with multimorbidity.

### **3C.5 How do we evaluate social prescribing interventions: a utilisation-focused approach**

**Emma Ladds**, University of Oxford

*Trish Greenhalgh*

#### **Problem**

The surge of social prescribing in primary care reflects its recent promotion within national UK policy. Interventions support collaboration between individuals, families, and stakeholders to improve self-management of problems resulting from socioeconomic factors. Some evidence suggests social prescribing can reduce pressure on healthcare services, build up the local community, and produce economic benefits. However, schemes tend to be heterogenous, localized and small scale, and subject to influence from stakeholders and external factors. This complexity makes it challenging to meaningfully evaluate the impact of interventions. However, the rising prevalence, popularity, and financial resourcing of social prescribing heightens the importance of developing effective methods for doing so.

#### **Approach**

Live Well in Braunton [LWIB] is an independent networking initiative in North Devon that aims to improve community wellbeing. In this study we are using a mixed-methods utilisation-focused approach to evaluate LWIB to better understand the intervention and utility of this method. Working closely with practitioners and the users of our findings, this reciprocally reactive strategy aims to minimize the translation gap between research and practice. Outcomes derived from stakeholder interviews and the Common Outcomes Framework will provide quantitative and qualitative data about processes and impact on individuals, health service use and the local community. Thematic and contribution analysis will be used to provide a narrative and explanatory assessment of the intervention and determine the extent to which it is responsible for observed impacts.

#### **Findings**

For local stakeholders, important outcomes reflected personal wellbeing and community development above health service use. Qualitative findings were valued above quantitative. However, financial backers mandated objective wellbeing scales and numerical process data. All interviewees recognized the value and importance of meaningful evaluation. Collecting and analysing data is challenging. Data collection tools developed for social prescribing may be too costly for individual projects. Following fundraising, a user-specific database is in development for LWIB to facilitate this. Close relationships with practitioners are essential to enable rigorous, unbiased data collection and generate the deeper contextual understanding required for meaningful qualitative analysis. However, this is time and resource intensive, which is frequently inadequately recognized by many social prescribing commissioners.

#### **Consequences**

Meaningful evaluation must be acknowledged as a crucial component of social prescribing. Generating useful findings for practitioners and funding stakeholders should allow for effective adaptation of processes and outcomes should offer narrative and explanatory value. Relationship development, data collection and analysis are time and resource intensive, and this needs to be recognized at the planning and funding stages. Given the complexity of social prescribing, it is likely evaluations will inadequately capture the entirety of impacts - positive and negative. Openly acknowledging this whilst transparently demonstrating any narrative attempt at generating useful, contextually grounded knowledge i.e. through utilization-focused methods, may be the most appropriate and meaningful approach.

### **3C.6 Can a Primary Care Network deliver the NHS Long Term Plan?**

**Kim Harman**, Bath Enhanced Medical Services+

*Kathryn Burbridge, Chris Clapp, Lizzie Doman, Elaine Smith, Roger Stead*

#### **Problem**

How does a Primary Care Clinical Network with common policies, deliver the NHS Long Term Plan? General practices have limited spare-time and energy to invest in creating Primary Care Network (PCNs). Working as a PCN has also introduced challenges for staffing/clinical governance including policies/procedures. The challenge is even greater with Primary Care investment being low and increasing patient complexity. We recognized the need to work in a common-way in many areas. To facilitate developing our PCN and amalgamating our processes we employed a Project Manager to support the Clinical Director/Practice Managers.

#### **Approach**

The Project Manager was able to spend time understanding the expected work of the PCN and support mechanisms e.g. the shared income stream, the Additional Roles Reimbursement Scheme supporting the CDs in decision making. The service specification that funds the PCNs could also be developed sharing ideas to improve/develop Directed Enhanced Services, or find existing services. Where policies/procedures required a common approach e.g. Adverse Weather/Business Continuity Planning the Project Manager amalgamated existing documents producing common/single documents. Sharing good practice/learning ensured learning quickly and efficiently. It was recognized some areas may be different. GDPR required common documents to be produced to allow data sharing if patients were to be able to be seen at any site, including privacy statements and Data Protection Impact Assessments. Mapping back office staff skills allowed planning for 'neighbourhood' working in Business Continuity Plans. Audit work to support QoF submissions/NHS DSPT could be benchmarked and compared. The Project Manager was able to direct/administer all audits.

#### **Findings**

The Project Manager Found, and understood the funding available to support the PCN and funded new roles - doing things differently/preventing illness and tackling health inequalities/getting the most out of taxpayers investment in the NHS Developed and share new policies/protocols and ensure old ones were up-to-date - backing our workforce. Shared good practice and find new ways of ensuring compliance with many common submissions and processes in Primary Care e.g. NHS DSPT, SARs, PatientOnLine preparation, safeguarding returns - making better use of data and digital technology/getting the most out of taxpayers investment in the NHS. This allowed the practices to continue to function with little disturbance to the delivery of care, often improving back office service delivery.

#### **Consequences**

The Project Manager allowed CD and Practice Managers to continue to spend time doing their usual-work ensuring they were able to give more time and energy to the PCN when required. To maintain independence but work together using a third party to review ways of working and find new/improved systems has made amalgamation less fraught. Moving forward with joint working now trust has been developed will be easier.

### **3D.1 Group-delivered interventions to improve control of blood pressure in hypertension**

**Nataliya Makukha**, University of Exeter

*Nataliya Makukha, Sinead TJ McDonagh, Christopher E Clark*

#### **Problem**

High blood pressure (hypertension) is the most common chronic condition presented in primary care and is the leading, global cause of cardiovascular disease and events. Interventions to improve the control of blood pressure and subsequent cardiovascular risk are therefore important. We have found, in a large ongoing systematic review, that pharmacist- and nurse-led interventions improve hypertension management, particularly if clinicians are able to recommend or prescribe changes in medication, deliver face to face consultations and undertake monthly follow-up until blood pressure targets are achieved. Individual patient interventions are time-consuming for the clinician and therefore group interventions may be a more efficient, and cost-effective, way to improve hypertension management. However, evidence from previous studies of group-based hypertension interventions is equivocal and therefore there is a need to summarise the current literature before recommending any changes to clinical practice. Aim: To determine if group-based hypertension interventions can achieve improved outcomes for hypertensive individuals compared to usual care or no intervention.

#### **Approach**

Systematic review, meta-analysis and narrative synthesis, where appropriate. We searched MEDLINE, Embase, CENTRAL and CINAHL to 30th August 2019 for randomised controlled trials comparing group-based interventions for adults (> 18 years) with treated or untreated hypertension, with either no intervention or usual care in primary, outpatient or community care settings. Data on type of group intervention (e.g. dietary, educational, lifestyle or medicine optimisation), definition of hypertension, blood pressure measurement method, change in systolic or diastolic blood pressure and attainment of targets, cost of interventions and study level demographics will be extracted to a standard proforma by two reviewers. Pooled estimates of changes in blood pressure will be calculated and compared between types of interventions, care setting and disease subgroups using meta-analyses in random effects models and narratively synthesised where applicable. Statistical heterogeneity of pooled blood pressure changes will be quantified using I<sup>2</sup> statistics and explored using sensitivity analyses and meta-regression of study level variables. Study quality will be judged using the Cochrane Risk of Bias (RoB2) tool and publication bias will be assessed using funnel plots and quantified using Egger's tests.

#### **Findings**

After duplicates were removed, 3746 unique citations reporting group hypertension interventions were screened and 228 full texts are currently being reviewed. Results from this ongoing systematic review and meta-analysis will be presented at the conference. This study is registered with PROSPERO: CRD42019145126.

#### **Consequences**

We anticipate that our results will inform future strategies and guidelines to enable a more efficient and cost-effective approach to managing hypertension in primary, community and outpatient care settings.



### **3D.2 Arm Based on LEg blood pressures (ABLE-BP): Can leg blood pressure measurements predict brachial blood pressure? An individual participant data meta-analysis from the INTERPRESS-IPD Collaboration**

**Sinead McDonagh**, University of Exeter

*James Sheppard, Fiona Warren, Kate Boddy, Leon Farmer, Philip Lewis, Rachel Baumber, Una Martin, Christopher E Clark*

#### **Problem**

Hypertension, a key modifiable risk factor for the prevention of stroke, is diagnosed and managed using blood pressures (BP) measured on the upper arm. Amputations, altered muscle tone after stroke or limb deformities can prevent accurate measurement of brachial BP and cardiovascular risk estimation, thus placing a cohort with known vascular risks at a disadvantage. Leg BP measurement is often used as a practical alternative to brachial measurement, but limited data exist to guide clinicians' interpretation of leg BP values in terms of hypertension diagnosis and treatment. Findings from our study-level systematic review and meta-analysis suggested that, on average, systolic BP was 15 mmHg higher in the leg than the arm. However, substantial heterogeneity between contributing studies existed, due to factors such as BP measurement method and patient characteristics, limiting applicability of this finding to individuals. Using arm and leg BP data from the Inter-arm BP difference individual participant data (INTERPRESS-IPD) Collaboration, which holds 34,543 individual records from 15 international studies, we now aim to: 1) Examine the relationship between arm and leg BP. 2) Develop and validate a multivariable model predicting arm BP from leg BP. 3) Investigate the prognostic role of leg BP in cardiovascular event and mortality risk prediction.

#### **Approach**

In an observational cohort design, IPD meta-analyses will be undertaken to explore the cross-sectional relationships between arm and leg BP in one- and two-stage multivariable models. Using hierarchical linear regression models with participants nested by study, we will investigate the association between arm and leg BP and participant characteristics. Planned predictor variables will include age, sex, body mass index, cardiovascular disease risk (defined by various cardiovascular risk scores), past medical history and use of antihypertensive medication. Prognostic models will also be derived for all-cause and cardiovascular mortality and cardiovascular events. Heterogeneity will be assessed using I<sup>2</sup> and tau<sup>2</sup>. Study quality will be assessed using a modified version of the Quality In Prognostic Studies tool.

#### **Findings**

Arm and leg BP records exist for 34,543 individuals (mean age: 61.7 years, mean arm systolic/diastolic BP at baseline: 138/79 mmHg, 52% female). A total of 20,576 (59.6%) have hypertension, 5,433 (15.8%) have diabetes and 7,565 (22.3%) have cardiovascular disease (including 2,233 (6.5%) with stroke or transient ischaemic attacks and 1,145 (3.6%) with peripheral artery disease). The median follow-up period is 8.5 years, with 3,870 (11.6%) participants experiencing cardiovascular events and 3,096 (9.0%) dying within 10 years. Further analyses are underway and arm-leg BP models will be presented at the conference.

#### **Consequences**

We will provide the first evidence-based method for estimating individual brachial systolic BP, and cardiovascular risk, from leg BP measurements. Our findings will support clinicians and patients in detecting and managing hypertension more effectively, where leg measurements are required.

### **3D.3 Home and Online Management and Evaluation of Blood Pressure (HOME BP): Main results from a randomised controlled trial**

**Richard McManus**, Universities of Oxford

*Paul Little, Beth Stuart, Katherine Morton, James Raftery, Jo Kelly, Katherine Bradbury, Jin Zhang, Shihua Zhu, Elizabeth Murray, Carl R May, Frances S Mair, Susan Michie, Peter Smith, Rebecca Band, Cathy Rice, Jacqui Nuttall, Adam Geraghty, Bryan William*

#### **Problem**

High blood pressure is the leading risk factor for cardiovascular disease world wide yet remains poorly controlled in perhaps a third of individuals. We have previously shown that a manual method of patient self-management in hypertension is effective but it has proven hard to implement due to the training and paper work required. Digital interventions provide a potential means to improve chronic disease management cost-effectively whilst improving patient engagement. The HOME BP trial aimed to test such an intervention in the context of self-monitoring and guided self-management of hypertension.

#### **Approach**

622 patients with treated but poorly controlled hypertension (>140/90mmHg) were randomised to either self-monitoring of blood pressure (BP) with a digital intervention or usual care using clinic blood pressure. The digital intervention provided feedback of BP results to patients and professionals with optional lifestyle advice and motivational support. Target blood pressures for hypertension, diabetes and over 80's followed UK national guidelines. The primary outcome was difference in systolic blood pressure after one year, adjusted for baseline blood pressure, blood pressure target, age and practice, with multiple imputation for missing values. Registration: The HOME BP trial is registered at: ISRCTN13790648

#### **Findings**

After one year, data were available from 552 (88.6%). Blood pressure dropped from 151.7/86.4mmHg to 138.4/80.2mmHg in the intervention group and 151.7/85.3mmHg to 141.8/79.8mmHg in the usual care group giving a mean difference in blood pressure of -3.53 (95% confidence interval -6.19, -0.86) / -0.55 (-1.89, 0.80) mmHg. Results were similar in the complete case analysis and adverse effects were similar between groups. Within trial costs showed an incremental cost effectiveness ratio of of £11 (6, 29) per mmHg reduction.

#### **Consequences**

A digital intervention for the management of hypertension utilising self-monitored blood pressure led to significantly lower blood pressure than usual care using clinic blood pressure at modest incremental cost. The HOME BP digital intervention, combined with self-monitoring, has the potential to provide cost-effective support for both patients and professionals in lowering blood pressure and is now suitable for widespread implementation in primary care.

### **3D.4 Patients' views about screening for atrial fibrillation (AF): a qualitative study in primary care**

**Christopher Wilcox**, University of Southampton

*Mark Loan, Stephanie Hughes, George Lewith, Michael Moore, Paul Little, Miriam Santer*

#### **Problem**

Atrial fibrillation (AF) is a common heart rhythm irregularity, affecting around 10% of people aged over 65 in the UK. AF is associated with an increased risk of stroke, which is substantially reduced by anticoagulation. As a significant proportion of AF is paroxysmal and can be asymptomatic, it can often go undiagnosed. There has therefore been much recent debate about routinely screening for AF in the UK, with commissioned pilot schemes, ongoing large clinical trials, and the emergence of inexpensive consumer single-lead electrocardiogram (ECG) devices that can be used to detect AF. There is however a sparsity of qualitative data in the literature on patient beliefs and attitudes towards screening for AF. Our aim was to explore patients' views and understanding of AF and AF screening, in order to determine acceptability, and help inform future recommendations.

#### **Approach**

The current qualitative study was nested within the Screening for Atrial Fibrillation using Economical and Accurate Technology (SAFETY) study, a large primary care AF screening trial undertaken across three GP practices in the Wessex area. A convenience sample of 34 of the 418 trial participants not known to have AF from a single GP surgery were invited to take part in interviews, and 15 (44%) agreed to participate. A semi-structured interview guide was used flexibly to enable the interviewer to explore any relevant topics raised by the participants. Interviews were recorded, transcribed verbatim, and analysed using inductive thematic analysis in NVivo 10.

#### **Findings**

Of the 15 participants, four were male (27%) and the average age was 68 years. Participants generally had an incomplete understanding of AF and conflated it with other heart problems, or with raised blood pressure. Few acknowledged its association with risk of stroke or developing clots. With regards to their views on screening, many raised positive opinions regarding the potential for early detection and treatment of AF. Few participants considered anxiety and the cost of implementation, however none acknowledged potential harms associated with screening, such as potential for inaccurate results (e.g. false negatives), side effects of anti-coagulation treatment, or the risk and inconvenience of further investigations. The screening devices in the SAFETY trial were generally well accepted, and participants were generally in favour of engaging with prolonged screening if it were recommended to them by a healthcare professional.

#### **Consequences**

Our study highlights that there may be poor understanding (of both the nature of AF and potential drawbacks of screening) amongst patients who have been screened for AF. Further work is required to determine if resources including decision aids (which have been used successfully in other screening programmes) could address this important knowledge gap, improve clinical informed consent for AF screening.

### **3D.5 Systolic inter-arm blood pressure difference and cognitive decline: Findings from the INTERPRESS-IPD Collaboration**

**Christopher E Clark**, University of Exeter

*Christopher E Clark, Kate Boddy, Fiona C Warren, Sinead TJ McDonagh, Sarah Moore, Victor Aboyans, Lyne Cloutier, Richard J McManus, Angela C Shore, Rod S Taylor, John L Campbell*

#### **Problem**

Hypertension and dementia are associated with older age and with each other. As the populations age, numbers of individuals living with dementia will rise, representing substantial costs and care burdens for society. Currently, there are no interventions to halt established cognitive decline, therefore approaches focus on prevention. Systolic inter-arm difference in blood pressure (IAD) and cognitive decline are both associated with cardiovascular disease. We therefore propose, and recently published initial evidence for, associations of IAD with prospective cognitive decline. We now present findings from the Inter-arm blood pressure difference individual participant data Collaboration (INTERPRESS-IPD), examining associations of IAD with development of mild cognitive decline (MCI) and dementia.

#### **Approach**

Individual participant data meta-analyses: we examined time to event data for new diagnoses of MCI and dementia, according to IAD status in univariable and multivariable Cox regression models, stratified by study. Multivariable analyses were adjusted for systolic blood pressure, age, sex and highest educational attainment. We also examined changes in Mental State Examination (MSE) scores, with adjustment for all of the above and duration of follow up.

#### **Findings**

Mean age was 66.2 (SD 11.9) years, 55% of participants were female, 84% were of White ethnicity and mean systolic IAD was 7.0 (7.5) mmHg. During 10 years of follow up, there were 273 (5.9%) new diagnoses of MCI among 4,635 participants, from 3 cohorts. In univariable analyses, MCI was associated with a systolic IAD  $\geq 5$ mmHg (Hazard Ratio (HR) 1.34 (95%CI 1.04 to 1.72);  $p=0.022$ ) and IAD  $\geq 10$ mmHg (HR 1.33 (1.03 to 1.73);  $p=0.032$ ). After adjustment, the associations remained: HR 1.31 (1.02 to 1.67;  $p=0.036$ ) for IAD  $\geq 5$ mmHg and HR 1.29 (0.99 to 1.68;  $p=0.056$ ) for IAD  $\geq 10$ mmHg. No significant associations were observed above an IAD of 10mmHg. There were 95 (2.0%) new diagnoses of dementia during follow up; no associations were observed between diagnosis of dementia and IAD. MSE scores were recorded for 2,709 participants in 3 cohorts; 419 (15.5%) showed clinically meaningful reductions (i.e.  $\geq 5$  points) during follow up. Decreases were associated with an IAD  $\geq 5$ mmHg ( $p=0.004$ ) and IAD  $\geq 10$ mmHg ( $p=0.006$ ) on univariable analyses. After adjustment the association with an IAD  $\geq 5$ mmHg remained ( $p=0.033$ ); age and educational attainment attenuated the association with an IAD  $\geq 10$ mmHg ( $p=0.11$ ).

#### **Consequences**

We present the first time-to-event analyses of development of MCI with IAD. These data provide additional evidence that systolic IADs  $\geq 5$ mmHg and  $\geq 10$ mmHg are associated with development of MCI in a pooled cohort of >4,000 participants. Work to enlarge the dataset and extend these analyses continues. Measurement of blood pressure in both arms is recommended and is straightforward; confirmation of these findings could inform individualised treatment decisions to minimise risk of future cognitive decline.

### **3D.6 Two year outcomes of patients with newly diagnosed atrial fibrillation: UK findings from the GARFIELD-AF registry**

**Patricia Apenteng**, University of Warwick

*Saverio Virdone, David Fitzmaurice*

#### **Problem**

Atrial fibrillation (AF) increases the risk of stroke fivefold and the risk of death twofold. Anticoagulation therapy reduces the risk of stroke (and systemic embolism, SE) and death at the cost of an increased risk of bleeding. The last decade has seen the refinement of stroke and bleeding risk stratification schemes and the emergence of non-VKA anticoagulants (NOACs) which provides a wide range of anticoagulant options. These developments transformed the management of AF, however, there is limited real-world evidence of the clinical outcomes of the current management of AF.

#### **Approach**

The Global Anticoagulant Registry in the FIELD (GARFIELD-AF) registry is a prospective, observational, multi-centre, international study of patients with newly diagnosed AF with  $\geq 1$  additional risk factor for stroke. UK participants were recruited in primary care, and diagnosed with AF between 2011 and 2016. We investigated the two-year event rates for all-cause mortality, stroke/systemic embolism (SE) and major bleeding in the UK cohort. Event rates were calculated per 100 person-years of observation with corresponding 95% confidence intervals (CI); only the first occurrence of each event was taken into account.

#### **Findings**

A total of 3572 UK participants were prospectively enrolled in five sequential cohorts. At baseline, the mean age (SD) was 74.8 (9.0) years, and 41.7% of participants were females. The mean (SD) CHA<sub>2</sub>DS<sub>2</sub>VASc and HAS-BLED scores were 3.3 (1.5) and 1.6 (0.9) respectively. At diagnosis 64.7% received anticoagulant therapy (45.7% VKA and 19% NOAC, with or without an antiplatelet), 20.7% received an antiplatelet only, and 13.3% received neither anticoagulant nor antiplatelet therapy. At two-year follow up, the rates (95% CI) of all-cause mortality, stroke/SE, and major bleeding were 4.13 (3.68 to 4.65), 1.65 (1.37 to 1.99), and 0.78 (1.37 to 1.99) per 100 person-years respectively. Cardiovascular death occurred at a rate of 1.10 (0.88 to 1.39) per 100 person-years and constituted 26.7% of deaths. Non-cardiovascular death occurred at a rate of 2.15 (1.83 to 2.53) per 100 person years and constituted 52% of deaths. The remaining deaths (22.2%) were of undetermined cause. Ischemic stroke accounted for 3.2% of all known causes of death.

#### **Consequences**

In this contemporary AF study population, death remains the most frequent outcome, occurring at 2.5 times the rate of stroke/SE and over 5 times the rate of major bleeding. Compared with patients in a US AF registry (ORBIT AF) diagnosed between 2010 and 2011, our study population has a lower mortality rate (4.13 vs 5.43 per 100 person years), similar stroke rate (1.65 v 1.57 per 100 person years) and lower rate of major bleeding (0.78 vs 3.32 per 100 person-years). This suggests an improved prognosis of patients with AF with maintained clinical benefit of stroke reduction but less harm from serious bleeding.

#### **4A.1 Effectiveness of physical activity promotion and exercise referral in primary care: a systematic review and meta-analysis of randomised controlled trials**

**Jean-Pierre Laake**, University of Warwick

*Joanna Fleming*

##### **Problem**

Physical inactivity is the fourth leading risk factor for global mortality. Reducing sedentary behaviour and increasing physical activity are efficacious for improving many physical and mental health conditions including cardiovascular disease, type 2 diabetes and depression. Reducing sedentary behaviour and increasing physical activity can also be effective at reducing obesity, however sedentary behaviour and reduced physical activity are also associated with mortality independently. Despite this most adults in the UK do not currently meet the UK Chief Medical Officers' guidelines for weekly physical activity. As most adults visit their general practitioner at least once a year, the primary care consultation provides a unique opportunity to deliver exercise referral or physical activity promotion interventions. Synthesising the most up to date literature is required in order to gain a better understanding of the most effective methods for supporting patients to participate in more physical activity. This is systematic review of randomised controlled trials for the effectiveness of physical activity promotion and referral in primary care.

##### **Approach**

This study is ongoing and is currently at the screening stage. A comprehensive literature search of Embase, MEDLINE (Ovid), Web of Science (Core Collection), SCOPUS, CINAHL, PsycINFO and The Cochrane Library (CENTRAL) has been conducted for studies with a minimum follow-up of 12-months that report physical activity as an outcome measure (by either self-report or objective measures) including an intention to treat analysis. Rayyan software was used to facilitate blind screening. The authors have independently screened papers by title and abstract. On completion authors will independently: screen paper by full text, assess studies for inclusion, appraise for risk of bias and extract data. The quality of the evidence will be assessed using the GRADE (Grading of Recommendations Assessment, Development and Evaluations) approach. The primary outcome will be participation in physical activity at 12-months. Pooled effects will be calculated using random effects models. The protocol is registered with PROSPERO the international prospective register of systematic reviews, ID CRD42019130831.

##### **Findings**

At present the combined searches have returned 13,626 results. After the removal of duplicate records 6,372 unique titles and abstracts remain. These will be independently screened by the authors. The full results of the systematic review and meta-analysis will be reported early next year.

##### **Consequences**

This systematic review and meta-analyses will summarise the evidence for the effectiveness of physical activity promotion and referral as interventions for improving physical activity, as well as whether studies using objective measures of physical activity have similar effects to those studies using self-report measures. This knowledge has importance for primary care clinicians, patients and, given the focus of the recent NHS long term plan on preventive medicine, for those making policy decisions.

#### **4A.2 What influences men's engagement with weight loss services? A qualitative study.**

**Megan Elliott**, University of South Wales

*Dr Fiona Gillison, Prof Julie Barnett*

##### **Problem**

Engagement of men with commercial and UK NHS weight loss services is low, and few studies report on why this may be. However, evidence shows that men who do participate in weight loss programmes tend to lose as much, or more weight than women. The present study aimed to explore men's experiences and expectations of mainstream weight loss services in the UK, following referral from a medical professional, particular in relation to barriers and motivators.

##### **Approach**

Semi-structured interviews were conducted with 18 men with a BMI over 25kg/m<sup>2</sup> including those who had, and had not, attended group-based or one-to-one weight loss services. Interviews were analysed using thematic analysis.

##### **Findings**

Two themes were identified; Fear as a motivation for change (1) and Attitudes towards existing weight loss services (2). Within theme two, two subthemes were identified; 'Female dominated services' and 'Incompatibility of existing services for men'. The findings suggest that fear, as a result of a medical diagnosis or referral is a mechanism for motivating men to engage with weight loss services. This was often augmented by awareness of other people's experiences of poor health due to their weight. The gender imbalance and attitudes towards existing weight loss services deterred men from engaging with or continuously attending sessions. This imbalance resulted in feelings of self-consciousness, shame and a perceived stigma for men using weight loss services. These experiences highlighted the importance of providing services which align with men's preferences to promote engagement.

##### **Consequences**

A medical diagnosis or referral serves as a strong motivator for men to engage with weight loss services by invoking fear of negative consequences of not losing weight. This has implications for medical professionals in primary care raising the issue of weight, providing referrals and encouraging engagement of men in weight loss services. Men perceived weight loss services to be feminised spaces, in which they felt self-conscious and out of place. As a result, men were deterred from engaging and considered their options were limited. Involving men in research, service design and evaluation is key to improving their engagement and weight loss.

#### **4A.3 Engagement of parkrun event teams in linking with GP practices to support patient and staff participation in local 5km events**

**Joanna Fleming**, University of Warwick

*Professor Jeremy Dale, Chrissie Wellington*

##### **Problem**

Increasing physical activity is a priority, both in the treatment of and prevention of disease. In 2018, a joint collaboration was launched between parkrun and the Royal College of General Practitioners (RCGP), encouraging the linking of GP practices with their local 5km parkrun event(s). parkrun has the advantage that it is already firmly established across the UK, enabling participants to automatically become part of a supportive community. Over 1300 GP practices in the UK are now registered with the scheme, but little is known about the engagement of parkrun event teams. This study aims to investigate the involvement of parkrun event teams in the parkrun practice initiative. In doing so, we explore event teams' motivations for linking with GP practices, the processes involved, associated challenges and suggestions for improvements. We also explore the level of awareness and perceptions of those event teams who have not yet linked with GP practices as part of the initiative.

##### **Approach**

An online survey (delivered using Qualtrics) was sent via email from parkrun Head Office to the Event Director at all UK parkrun teams (n=634) in May 2019, with a request for either themselves or one member of the core volunteer team to complete it. Questions related to event details, how local practices have linked with the event, activities being carried out, challenges experienced and suggestions for improvement. It also explored awareness and perceptions among event teams not yet linked. Descriptive statistics were carried out for all sections of the survey. Free text comments were categorised and interpreted thematically.

##### **Findings**

A total of 322/634 (50.8%) parkrun event teams completed the survey. Event teams were supportive of the initiative, with a large proportion (225/322; 69.9%) linked with at least one practice. Links were usually initiated by practices (187/225; 83.1%). Only a small proportion reported challenges (35/219; 16%), including difficulty engaging with/maintaining contact with practices, and lack of time due to being volunteers. Event teams showed a willingness to engage in activities to support practices, such as mentioning the initiative in event communications and enabling practices to have an information stand at their event. The principal reason cited by those not yet linked was that they had not yet been approached by a practice (67/97; 69%).

##### **Consequences**

Event teams are willing to support practices and provide a welcoming environment for the initiative to grow and develop; though mutual engagement from both sides is required. Better communication about which practices are linked with an event team and how event teams can keep in contact may help in the continued relationship between an event and a practice



#### **4A.4 Household transmission of antibiotic resistant and susceptible bacteria: a systematic review**

**Niamh Roberts**, University of Bristol

*Alastair Hay, Ashley Hammond*

##### **Problem**

Bacterial resistance to antibiotics poses a threat to the future of modern medicine. This is a particularly important problem in primary care where over 70% of antibiotics are prescribed. The UK Government published a 5-year strategy for tackling antibiotic resistance, with two of its key aims being (i) gaining a better understanding of how bacteria are spread within the community, and (ii) how the built environment favours the spread of bacteria. This review will explore current evidence regarding how bacteria (either resistant or susceptible) are transmitted within the household environment, including any intervention studies exploring how the spread of bacteria within households can be prevented.

##### **Approach**

We systematically searched Medline and Embase for studies published between 1946 and 2019 investigating household transmission of antibiotic resistant and susceptible bacteria. Studies were eligible if they investigated transmission from any source (such as humans, pets or the environment) to humans, or where they investigated interventions to prevent transmission of bacteria in the household. No restrictions were placed on study design, or language of published paper. Where appropriate, a meta-analysis was conducted.

##### **Findings**

Data collection and analysis is currently underway. Results will be presented in full at the conference.

##### **Consequences**

Antimicrobial resistance is a top international public health priority in medical research. This review will contribute to our understanding of how bacteria are spread within the community, and the effect that social factors such as interactions with companion animals and the wider household environment might have on bacterial transmission.

#### **4A.5 The parkrun practice: an investigation of how GP practices use their websites in the promotion of parkrun to patients**

**Rebecca Mensah**, University of Warwick

*Rebecca Mensah*

##### **Problem**

It is well known that physical inactivity increases the risk of numerous diseases/disorders, including several forms of cancer, diabetes, high blood pressure, coronary and cerebrovascular diseases, and obesity. There is also an association between lower levels of physical activity and an increased prevalence of mental health difficulties. In June 2018, the Royal College of General Practitioners (RCGP) partnered with parkrun UK to form the 'parkrun practice Initiative'. parkrun is an organised, free, weekly timed 5km event, which it takes place in open spaces in the UK and across the world. The initiative aims to promote the health and wellbeing of both staff and patients. The RCGP parkrun practice Toolkit suggests practices can "Include a parkrun page or a link to the parkrun website on the practice website", but how this is done is left to the discretion of the practice. As such, this study aims to investigate how practices are using their practice website to promote parkrun as part of the initiative, including the format and content of information presented, the variety of promotion methods used and identifying similarities and differences between practices websites.

##### **Approach**

This was a qualitative examination of parkrun practice websites. A national survey carried out in April/May 2019 of parkrun practices in the UK asked practices to state whether they had used their website to promote parkrun and 114/306 practices reported doing so. The names of these practices were extracted and each website was subsequently searched manually. Screenshots were taken across all websites. A data extraction proforma was used to collect descriptive qualitative data. Data was uploaded into NVivo 11 software to be analysed using a thematic approach.

##### **Findings**

This study is ongoing and is currently at the analysis stage. Emerging themes of the types of information represented via GP practice websites are 'information about parkrun/parkrun practices', 'parkrun practice events and activities', 'addressing patient concerns', 'benefits (health and non-health) of parkrun', 'patient and staff experiences', and 'practical information'. This presentation will describe these themes in more detail and their relevance to the promotion of the parkrun practice.

##### **Consequences**

This study aims to add to current knowledge about how parkrun practices are engaging in the initiative and in particular how they using their websites to promote parkrun to their patients. This in turn may help in the development of recommendations for practices to follow when promoting parkrun on their websites

#### **4B.1 The difficulty of measuring and communicating breathlessness-a cognitive interview study**

**Alice Malpass**, University of Bristol

##### **Problem**

Breathlessness is a clinical problem as important as pain the predictive value of dyspnoea in forecasting medical needs is well known. (for example, studies show dyspnoea severity is a much stronger predictor of 5 year mortality than FEV1 (forced expiratory volume in 1 second). Breathlessness is a sensation affecting those living with chronic respiratory disease, obesity, heart disease and anxiety disorders. Yet most people find breathlessness hard to describe and clinicians often avoid asking about a symptom they can do nothing about. Until recently, most measurements of dyspnea treated it as a single entity. A new measure, the multidimensional dyspnoea profile (MDP) attempts to measure the incommunicable different sensory qualities (and emotional responses) of breathlessness. We were curious whether the MDP could support difficulties in communication between GPs and their patients.

##### **Approach**

We conducted a cognitive interview study, asking participants to think aloud their thoughts as they completed a relatively new validated respiratory questionnaire. We recruited 16 adults from four Breathe Easy groups to take part. A purposeful sampling strategy was adopted to represent (when possible) different stages in the clinical encounter (for example time since diagnosis, number of exacerbations), as well as gender, age and ethnicity. Participants were interviewed once, lasting between one and three hours. Cognitive interviews were digitally recorded on an encrypted recorder and transcribed verbatim. Analysis used both the digital audio file and verbatim transcripts as the former retains important features needed for interpretative analyses (e.g. hesitations, tones of uncertainty, indicators of irritation). The study was informed by an interest in sensorial anthropology, which considers how shared cultural templates of 'what counts as a symptom' evolve and how (in this study) the process of bodily sensations becoming symptoms may impact upon GP-patient communication about dyspnea.

##### **Findings**

Using cognitive interviews of respiratory questionnaires, we give examples of how the wording used to describe sensations are often at odds with the language those living with dyspnea understand or use. They struggle to comprehend and map their bodily experience of sensations associated with dyspnea to the words on the respiratory questionnaire.

##### **Consequences**

If tools such as the MDP are problematic in terms of capturing what is meaningful for patients living with breathlessness where does this leave us in terms of asking patients about dyspnea? We suggest, along with David Currow, the very act of acknowledging the presence and impact of breathlessness is, in itself, a therapeutic intervention.

## **4B.2 Practice experiences of the At-Risk Registers Integrated into primary care to Stop Asthma crises in the UK (ARRISA-UK) intervention: a qualitative study**

**Leon Poltawski**, University of Exeter

*Leon Poltawski, Rachel Winder, Sarah Morgan-Trimmer, Ann-Louise Caress, On behalf of the ARRISA-UK trial team*

### **Problem**

The ARRISA-UK study is a cluster-randomised controlled trial evaluating an intervention intended to reduce adverse asthma outcomes, including hospital admissions or death, by improving the management of at-risk asthma patients in primary care. It comprises (i) an online training and support package for GP practice staff representatives, (ii) creation of a practice register of at-risk asthma patients and an on-screen flagging system for patients on the register, and (iii) action planning for staff dealing with these patients. 128 practices around the UK received the intervention and used the flagging system for a year. The aim of this qualitative study was to provide insights into practice experiences of the intervention and using the flagging system.

### **Approach**

As part of the ARRISA-UK study process evaluation, focus groups and individual interviews were conducted with staff in a sub-sample of intervention practices. A sampling frame was used to ensure diversity in practice size, location, area deprivation levels, and urban/rural nature. Clinical and non-clinical staff representatives at each practice were invited to participate, and groups and interviews were conducted by researchers not involved in the creation or delivery of the intervention. Discussions were audio recorded, transcribed and analysed using a framework approach.

### **Findings**

Over the period November 2018 to November 2019, 17 focus groups and 9 interviews were conducted with 112 staff from 18 practices in England and Scotland. Group composition varied, but across the sample there was representation of all staff roles (e.g. GPs, nurses, receptionists, pharmacists, practice managers). Most practices valued the ARRISA-UK intervention, particularly in raising staff awareness of at-risk asthma patients, and in prompting consistent application of clinical guidelines with this group. Practices differed considerably in terms of their action plans, the effectiveness of their dissemination of these plans, and in monitoring their implementation. Some focussed on changes mostly in one staff group, e.g. receptionists and the appointment systems they used; others instituted broader changes, e.g. in patient follow-up processes, prescription monitoring and addressing asthma management in all clinical consultations. Patient outcomes data were not available at the time of this analysis, but some staff thought that any adverse outcomes were more likely due to patient issues, such as poor adherence, rather than practice processes. **Problems** were identified by some practices with register accuracy and on-screen flagging.

### **Consequences**

The ARRISA-UK intervention appears to be feasible and acceptable to GP practice staff, and was reported to stimulate changes in management of high risk asthma patients. Attitudes to the intervention, and the apparent extent of behaviour changes by staff, varied considerably between practices. Our findings can contribute to the development of recommendations that may improve the effectiveness of the intervention and implementation of action plans.

#### **4B.3 Exploring patients experience of living with diabetes in Ecuador: preliminary results of focus groups.**

**Jimmy Martin Delgado**, Miguel Hernández University

*José Mira, Mercedes Guilabert*

##### **Problem**

Diabetes is considered a global health problem. In Ecuador it is the second cause of death, only after ischemic heart disease and is the first of the chronic diseases. Driven by obesity, unhealthy lifestyles and increased life expectancy, diabetes carries a high disease burden, due to its prevalence, complications and the multimorbidity associated with this pathology that surpasses primary care efforts. In Ecuador, a specific Clinical Practice Guideline is applied for this pathology, but it does not address patient participation. The objective of this study was to explore the experience of "living with diabetes" of the users of the national health system of Ecuador with the intention of developing the first PROM tool for the Ecuadorian environment.

##### **Approach**

a qualitative research that included four focus groups and six semi-structured interviews with adults with type 2 diabetes treated in primary care. A purposive sampling strategy was used to recruit individuals who might be interested in discussing their life experience. All participants voluntarily agreed to participate and signed an informed consent, all sessions were recorded in audio and subsequently transcribed. In order to obtain culture, beliefs, demographic, diet, type of treatment and degree of engagement, participants from the highlands, coastal, indigenous population and urban or rural areas were included. The information was analyzed based on the following mutually exclusive categories: personal, social and occupational dimensions of the disease. Information capture was continued until data saturation was reached in all cases.

##### **Findings**

42 patients, 10 men and 32 women between 30 and 75 years old participated. Of these, 19 participants belonged to rural areas and 23 participants to urban areas. Among the most prevalent symptoms, thirst was described as a persistent cause of discomfort, with fatigue added. The limited time per patient was indicated as an area for improvement, together with health education. A proportion of the participants accepted their pathology but not the treatment, this is motivated by a high prevalence of alternative treatments, the lack of information, the low level of health literacy and the "fear" of insulin therapy. Therapeutic goals agreed with the patients were not set. Among the main fears are the long-term complications (diabetic nephropathy and retinopathy) since this would detract from the autonomy they maintain and limit them from leading a "normal life".

##### **Consequences**

Developing these tools respond to the objectives of achieving patient-centered care and, therefore, add value to health care by expanding the indicators that monitor the quality of assistance provided. This type of procedure allows patients to be involved in the care process, thus establishing a framework to achieve better clinical results and greater patient satisfaction with the system.

#### **4B.4 What is the prevalence and impact of osteoporotic vertebral fractures in older women with back pain? Vfrac: Population-based cohort study**

**Tarnjit Khera**, University of Bristol

*A. Burston, S. Davis, S. Drew, R. Gooberman-Hill, Z Paskins, T. J. Peters, J. H. Tobias & E. M. Clark*

##### **Problem**

Osteoporotic vertebral fractures (OVF) are one of the most important fractures in older people. Such fractures are associated with a reduced quality of life and are an indication that affected individuals have high risks for future fracture. Despite this, less than one-third are diagnosed and managed appropriately, largely because of an absence of guidance about what clinical factors should trigger referral for diagnostic spinal radiographs. To help healthcare professionals particularly in primary care refer patients for investigation, the 'Vfrac' study is developing a simple clinical checklist to identify which older women with back pain should have a spinal radiograph to diagnose or exclude OVF. To date we have recruited and analysed data from the first 380 women to identify the prevalence of OVF in community-dwelling older women with back pain, and to identify the impact on health-related quality of life (HRQOL).

##### **Approach**

Women aged 65 and older registered with a GP in Bristol and Stoke-on-Trent were invited to take part by mail-out from primary care. Those who self-reported back pain in the previous 4 months were eligible. Participants completed a questionnaire, received a simple physical examination by a trained research nurse and had a spinal radiograph using standard NHS techniques. All radiographs were assessed for the presence or absence of OVF by a trained clinician. Self-reported HRQOL was assessed by a sub-section of the EQ-5D (a scale of 0=bad to 100=good). A sample size of 1633 was required to estimate the sensitivity and specificity of the checklist with adequate precision (5% margin of error around values >80%), based on a literature review that identified an assumed prevalence of OVF of 12%. Univariable associations between OVF and categorical variables were assessed using Chi-squared tests. Linear regression was used to assess association between OVF and HRQOL, and multivariable analyses were used to adjust for potential confounders.

##### **Findings**

Of 380 participants, the prevalence of OVF was 15.5%. Those with OVF were older ( $77.8 \text{ years} \pm 7.1$  vs  $72.9 \pm 5.5$ ) and reported higher use of walking aids (48.3% vs 22.2%) compared with those without OVF. No differences were seen in walking distance, falls or smoking between those with and without OVF. No differences were identified in health-related quality of life between those with and without OVF ( $66 \pm 24$  vs  $70 \pm 22$ ) even after adjustment for age and mobility.

##### **Consequences**

15% of older women in the community with back pain have OVF. However, this is not associated with a reduction in health-related quality of life when compared to women with back pain due to other reasons. Further analysis is required once the full sample size has been collected.

## **4B.5 Academic General Practitioners as realist researchers: Lessons learned**

**Freya Davies**, Cardiff University

*Alison Cooper, Fiona Wood, Adrian Edwards.*

### **Problem**

Realist synthesis and evaluation are gaining traction in health services research and are increasingly recognised by funders as methods which can generate important learning by exploring complexity. Realist research may hold intuitive appeal for clinicians who are already familiar with the messy reality of clinical practice, having witnessed widely varying responses when using similar approaches with different patients. As realist research is a highly interpretative process academics with a clinical background need to be aware of the various ways in which their role may have an influence.

### **Approach**

We use this presentation to discuss reflections from two studies in which academic general practitioners collected and analysed realist data. We will describe how being a clinician researcher influenced the interpretive processes of theory building and testing, and our suggestions on what clinical academics might need to consider when starting out in realist research.

### **Findings**

Initial theorising was informed by our insider knowledge of the health system, and our understanding of what drives our own clinical decision-making. However, we needed to actively engage with other stakeholders to challenge our assumptions and ensure we did not prioritise theories which resonated most with our own experiences. Data collection involved observing and interviewing clinicians (from our own and other clinical backgrounds). We made our clinical roles clearly visible and believe this facilitated rapport building and encouraged engagement with the research. Participants perceived our roles differently, with some appearing to be more open, while others appeared concerned about being judged, feeling obliged to justify to us the decisions they made. The realist teacher-learner style of interviewing allowed us to demonstrate that we were not looking for 'the right answer' but that we recognised and sought to explore variations in practice. While our understanding of jargon and the way systems work often helped interviews to flow, we recognised that we sometimes assumed that we understood our colleagues' experiences and could have missed opportunities to probe further. Reading our own interview transcripts, and discussing these with non-clinical colleagues helped us to identify these risks and adjust our interviewing style. Observations of clinical interactions proved challenging, as it was difficult not to focus on what we might have done in the same situation, raising possible ethical dilemmas. During the analysis stage, while our understanding of context often made us more confident about the interpretive process of retrodution, we also risked going too far beyond the data, relying too heavily on our own perspectives.

### **Consequences**

Reflexivity is essential for all researchers. We present the lessons learned from our own reflections and are keen to hear from other clinicians to build a shared understanding of particular issues that 'insider researchers' using a realist approach may need to consider.

#### **4B.6 What methods are being used to create an evidence base underlying chronic disease monitoring in primary care? A scoping review**

**Martha Elwenspoek**, University of Bristol

*Lauren J Scott, Katharine Alsop, Rita Patel, Jessica C Watson, Ed Mann, Penny Whiting*

##### **Problem**

Around 50% of laboratory testing in primary care is for monitoring chronic conditions. Substantial variation in test ordering between GP practices and regions suggests that many tests are being over- and under-used, which can cause harm to patients and increase healthcare costs. Current guidelines on testing lack a solid evidence base. There is currently no framework for evaluating optimal testing strategies and no guidance on how to generate this much needed evidence.

##### **Approach**

The aims of this scoping review were to map the extent, range and nature of research that provides evidence on optimal chronic diseases monitoring in primary care, and to identify research gaps in the existing literature. EMBASE, MEDLINE, and CINAHL were searched from inception to April 2019. We used the following eligibility criteria: studies of adult patients with chronic disease in a primary care setting that evaluated laboratory tests and aimed to optimise testing, find the best test or testing interval, show patient harms, costs, or variation related to testing. We used standard scoping review methods, including standardised data abstraction forms and data charting.

##### **Findings**

Of 94 included papers, 36% aimed to investigate test performance and 40% to describe the variation in monitoring. Most studies focused on diabetes (51%), followed by hypertension (11%), and rheumatoid arthritis (10%). The most frequently studied laboratory tests were renal function tests (35%), followed by HbA1c (23%). A retrospective cohort design, using routinely collected data, was the most commonly used study design (49%). A large proportion of studies only used descriptive statistics to analyse the data (28%). We identified gaps in evidence on establishing optimal testing intervals; strategies to optimise testing that improve patient outcomes; and harms to patients due to over-testing.

##### **Consequences**

Future studies need to address the identified gaps in the literature. Development of methodologies and reporting guidelines for research evaluating the use of tests for monitoring could improve the rigor, transparency, and reproducibility of future research in this area, and help researchers, peer reviewers, authors, and readers to determine the trustworthiness of the findings. In the absence of clear evidence, decisions around testing should be based on current guidelines, however these guideline recommendations should feed into, rather than override, patients' personal preferences and views.



#### **4C.1 Patient and Health Professional experiences of reducing antidepressant medication as part of the REDUCE feasibility RCT**

**Samantha Williams**, University of Southampton

*Claire Reidy, Hannah Bowers, Bryan Palmer, Adam Geraghty, Gerry Leydon, Carl May, Tony Kendrick*

##### **Problem**

There is considerable concern about increasing antidepressant use in England. GPs are writing more than 60 million prescriptions a year, to around 1-in-10 adults. Some people need long-term antidepressants to stop them getting depressed, but a third-to-a-half could possibly stop them without relapsing. However, stopping can be difficult with some patients experiencing withdrawal symptoms, while others may be fearful that they will experience them. There are good reasons for proposing that antidepressants should not be continued long-term unless absolutely necessary, but patients can be fearful and cessation can be difficult. The NHS funded six-year REviewing long term antiDepressant Use by Careful monitoring in Everyday practice (REDUCE) research programme aims to identify feasible, safe, effective, and cost-effective ways of helping patients taking long-term antidepressants taper off and stop treatment, when appropriate. This Work Stream 4 (WS4) of the REDUCE programme aims to determine the feasibility of a randomised controlled trial of a web-based intervention which supports practitioners and guides patients on coming off antidepressants, together with telephone calls with psychological practitioners to support the patients through this process.

##### **Approach**

Semi-structured qualitative interviews were conducted with 18 patients and 10 health professionals currently taking part in the REDUCE study at different time points. Thematic analysis of these interviews is underway, and additional analysis is being conducted utilising Normalisation Process Theory (NPT).

##### **Findings**

A summary of findings will be reported at the conference. Early analysis suggests a positive response to the study from both patients and health professionals and that recruitment methods have worked well. Health professionals report that GP time and patient continuity were the main barriers to recruitment. Patients reported that taking part in the study resulted in improved motivation and confidence to stop antidepressants by providing the opportunity to 'think about' their medication and improve self-awareness. Some participants have also suggested that they were surprised at how easy cessation could be, and that the programme enabled a safe and guided approach to stopping. However, patients randomised to the control arm expressed some disappointment at the lack of support to taper off and stop antidepressant use.

##### **Consequences**

**Findings** from this study have contributed to improving the REDUCE intervention website, provision of phone call support, and study recruitment for the full RCT. Further NPT analysis will inform how implementation of the REDUCE intervention works in practice and how this can be improved and implemented in the next REDUCE programme Work Stream (WS5, full RCT).

## **4C.2 REDUCE antidepressant reduction feasibility RCT**

**Tony Kendrick**, University of Southampton

*Hannah Bowers, Samantha Williams, Claire Reidy, Beth Stuart, Adam Geraghty, Geraldine Leydon, Wendy O'Brien, Michael Moore, Paul Little.*

### **Problem**

There is concern about increasing antidepressant use, now in around 1-in-10 adults. Some people need long-term antidepressants to stop them getting depressed, but a third-to-a-half could possibly stop them without relapsing. When GPs review patients on long-term antidepressants and recommend that they could begin to stop taking them, only 1-in-14 is able to stop. The REDUCE (REviewing long term antiDepressant Use by Careful monitoring in Everyday practice) study aims to identify safe, effective, and cost-effective ways of helping patients taking long-term antidepressants taper off and stop treatment, when appropriate. REDUCE work stream 4 aimed to determine the feasibility of a randomised controlled trial of online interventions to support practitioners and guide patients on coming off antidepressants, assess the acceptability of the Internet interventions, recruitment of practitioners and patients, and acceptability of planned outcome measures.

### **Approach**

Inclusion criteria: Patients taking antidepressants for longer than a year for a first episode of depression, or longer than two years for repeated episodes of depression, who are feeling well and would like to consider tapering off their antidepressants. Intervention: practitioner and patient access to ADvisor internet programmes designed to support antidepressant withdrawal, plus three patient telephone calls from a psychological wellbeing practitioner (PWP). Control arm received usual care. Assessments: baseline, 3 months, and 6 months. Primary outcome PHQ-9 at 6 months for depressive symptoms, secondary outcomes discontinuation of antidepressants, social functioning, wellbeing, enablement, quality of life, satisfaction, and use of health services for costs. Qualitative interviews to gather experiences of taking part.

### **Findings**

Recruitment of target of 14 practices was quickly achieved. Recruitment of sufficient patients was also achieved (211 responses from 791 letters given or sent to patients (26.6%); of 80 patients screened, 53 (66%) were eligible, so we recruited 13 more than the target of 40. Evidence that the interventions were acceptable and engaging, from the 10 GP & nurse, and 18 patient interviews, and audio-recordings of the PWP support calls. Follow-up rate at 3 months 78.8%; at 6 months 81.6%. Questionnaire measures rated acceptable, and feasible in the time available.

### **Consequences**

We met the funder's criteria for moving to the main trial, and we are well prepared to start WS5. The trial met the ACCEPT criteria for inclusion of the patients in with the main trial as an internal pilot. The research remains valuable, and if the findings are positive they can be readily disseminated.

### **4C.3 Therapeutic interventions to maintain abstinence from recently detoxified, alcohol dependence in primary care: a systematic review and network meta-analysis**

**Hung-Yuan Cheng**, University of Bristol

*Luke McGuinness, Roy G. Elbers, Georgina J. McAurthur, Abigail Taylor, Alexandra McAleenan, Sarah Dawson, Jose Lopez-Lopez, Julian P.T. Higgins, Sean Cowlshaw, Anne Lingford-Hughes, Matthew Hickman, David Kessler*

#### **Problem**

Current NICE guidelines recommend that, for those with moderate to severe alcohol dependence, withdrawal from alcohol is followed by the offer of a combination of either acamprosate or naltrexone and a psychosocial intervention. However, access to these options is often limited, and treatment is relatively resource intensive. In this systematic review and network meta-analysis, we aimed to evaluate interventions that can be delivered in primary care, to determine which are most appropriate for implementation in UK primary care context.

#### **Approach**

We searched MEDLINE, Embase, PsycINFO, and Cochrane CENTRAL databases for randomised controlled trials (RCTs) from the earliest date to February 2018. Trial registries, ClinicalTrials.gov and the World Health Organization's International Clinical Trials Registry Platform, were also searched in March 2018 to identify unpublished or ongoing trials. Reference lists of relevant systematic reviews and included studies were also searched to supplement the searches. RCTs were selected if they compared different interventions that could be used in primary care and reported continuous abstinence with at least 12-week follow-ups. The population was alcohol dependent patients who had detoxified recently (within 4 weeks). Abstinence and all-cause dropouts up to 12 months follow up were used to evaluate effectiveness and acceptance of interventions respectively. Two reviewers independently extracted the data and assessed the risk of bias of included studies using the RoB 2 tool. Network meta-analysis was performed to combine results using random effects models. Mean ranks of interventions, along with confidence in the evidence via the Confidence In Network Meta-Analysis (CINeMA) tool, was used to reach conclusions.

#### **Findings**

A total of 16,555 unique records were retrieved and 62 RCTs (41 interventions) were included. NMA results based on all 62 trials showed that, compared with placebo, acamprosate (OR 1.85, 95% CIs 1.49-2.33), sodium oxybate (OR 2.31, 1.22-4.36), quetiapine (OR 6.75, 1.18-38.05) and topiramate (OR 1.88, 1.06-3.34) were the only interventions associated with an increased probability of abstinence. Based on 60 trials reporting all-cause dropouts, the NMA results indicated potential reductions, compared with placebo, for acamprosate (OR 0.73, 0.62-0.86), naltrexone (OR 0.70, 0.50-0.99), home visits (OR 0.32, 0.11-0.95), topiramate (OR 0.45, 0.24-0.83), acamprosate & nurse follow-ups (OR 0.21, 0.08-0.58) and acamprosate & naltrexone (OR 0.30, 0.13-0.68).

#### **Consequences**

Acamprosate was the only intervention with moderate confidence in the evidence of effectiveness and acceptance in primary care settings. It is uncertain whether other interventions can improve abstinence and reduce dropouts due to low or very low confidence in the evidence. More evidence from high quality RCTs in UK primary care is needed.

#### **4C.4 How much change is enough? Evidence from a longitudinal study on depression in UK primary care.**

**Daphne Kounali**, University of Bristol

*Katherine S. Button, Gemma Lewis, Simon Gilbody, David Kessler, Ricardo Araya, Larisa Duffy, Paul Lanham, Tim J. Peters, Nicola Wiles, Glyn Lewis*

##### **Problem**

The Patient Health Questionnaire (PHQ9), the Beck Depression Inventory (BDI-II), and the Generalised Anxiety Disorder Assessment (GAD-7) are widely used in the evaluation of interventions for depression and anxiety. The smallest reduction in depressive symptoms that matters to patients is known as the Minimum Clinically Important Difference (MCID). Little empirical study of the MCID for these scales exists.

##### **Approach**

A prospective cohort of 400 patients in UK primary care were interviewed on four occasions, two weeks apart. At each time point, participants completed all three questionnaires and a 'global rating of change' scale (GRS). MCID estimation relied on the reduction in scores among those reporting improvement on the GRS scale, stratified by three categories of baseline severity assessed on the Clinical Interview Schedule (CIS-R).

##### **Findings**

For moderate baseline severity, those who reported improvement on the GRS had a change of 21% (95% confidence interval (CI) -26.7, -14.9) on the PHQ9; 23% (95% CI -27.8, -18.0) on the BDI-II and 26.8% (95% CI -33.5, -20.1) on the GAD-7. The corresponding threshold scores below which participants were more likely to report improvement were -1.7, -3.5 and -1.5 points on the PHQ9, BDI-II and GAD-7, respectively. Patients with milder symptoms at baseline require a much larger drop in their scores as percentage of their baseline to perceive any benefit.

##### **Consequences**

An MCID representing 20% reduction of their baseline scores is a useful rough guide for any of these scales. Treatment benefits smaller than this are unlikely to be noticed by patients at low baseline severity.

#### **4C.5 Do primary care patients think it is important to consider anxiety separately from depression?**

**Charlotte Archer**, University of Bristol

*David Kessler, Nicola Wiles, Katrina Turner*

##### **Problem**

Anxiety disorders are common, with a 40% increase in generalised anxiety disorder reported in the general population between 2007 and 2014. Despite this increase, GPs' recording of anxiety disorders decreased between 1998 and 2008. This may be due to a reluctance to label patients with a formal anxiety disorder, or a tendency to record depression instead of anxiety, particularly if anxiety is comorbid with depression, which is often the case. We know little about whether patients think anxiety should be considered on its own. This study explored whether primary care patients thought GPs should consider anxiety separately from depression, when patients present with both.

##### **Approach**

In-depth qualitative interviews were conducted with 20 patients, purposively sampled from GP practices in Bristol, North Somerset, and South Gloucestershire. Interviews were held either in person or over the telephone. A topic guide was used to ensure consistency across the interviews. Interviews were audio-recorded, transcribed verbatim and analysed thematically.

##### **Findings**

Preliminary analysis of the data suggests that for those with long-term anxiety, and those with chronic co-morbid depression, GPs should discuss anxiety as a clearly distinct diagnosis, with consideration given to the causes, symptoms, impact on their life, and management. Anxiety was frequently felt to be a cause of depression, and patients highlighted the importance of early management of anxiety preventing later transition into depression. In addition, patients also felt that within society, and within primary care, anxiety is viewed as less serious than depression, yet it may be more disabling to patients than depression. Furthermore, receiving a diagnosis is just as important as the management of symptoms, particularly in terms of acceptance and readiness to engage with treatment. Non-specific symptom codes, such as 'anxiousness' can be unhelpful for patients, and can contribute to a lack of clarity in understanding their mental health.

##### **Consequences**

In order to continue providing patient-centred care, consideration and discussion of anxiety as a distinct disorder of importance that can exist alongside depression may improve patients' understanding of their mental health, increasing readiness to engage with treatment. For those with co-morbid depression, understanding the distinction between the disorders may encourage earlier management of anxiety, and reduce the likelihood of subsequent depressive symptoms. Furthermore, facilitating the conversation regarding the differences between the conditions may promote improved understanding and awareness of anxiety within society. In addition, consideration should be given to how anxiety is diagnosed and communicated to the patient during the consultation, with care taken over the use of non-specific symptom codes and how these are shared with patients.

#### **4D.1 Parents online exchanges about eczema treatments: qualitative analysis of online discussion forums**

**Bethan Treadgold**, University of Southampton

*Emma Teasdale, Ingrid Muller, Neil Coulson, Miriam Santer*

##### **Problem**

Parents and carers of children with eczema often turn to social media sites and online discussion forums for information and peer-support. Previous research has shown that sharing and receiving experiences online about long-term conditions helps individuals to; address offline information gaps, learn self-management behaviours from others, receive validation, build community with similar others, navigate health services, and all within the protection of anonymity. Nevertheless, concerns exist regarding the quality of the advice shared on discussion forums. Recent online discussion forum studies of parents of children with eczema found diverse beliefs expressed about the use of topical corticosteroids to treat eczema. However, little is known about the beliefs that parents share on discussion forums about other treatments for eczema, such as emollients, antihistamines and bandages/wet wraps. This study aimed to explore the views and experiences exchanged by parents on social media sites and online parenting forums about eczema treatments.

##### **Approach**

We conducted an online survey to identify the most popular online resources used by parents of children with eczema. We then collected online discussions about eczema treatments dating back to February 2016 from two online parenting forums and one social media site, identified as most frequently accessed in our survey. Discussions were included where the initial post referred to at least one treatment for their child's eczema and received at least one response. Relevant discussions were identified from the parenting forums through internal search functions using terms such as 'eczema', 'steroid' and 'emollient', and by reading through all discussions from the social media site group. We have coded the data in NVivo version 12 and are carrying out an inductive thematic analysis of the data.

##### **Findings**

243 discussions (71 from Site 1; 78 from Site 2; 94 from Site 3) were collected. The nature of responses to requests for information about treatments varied: some parents responded by providing long detailed accounts of their own child's treatment journey, often with emphatic advice that the same treatment that worked for them must work for others; others expressed more awareness that different treatments work for different people. Questions often received responses containing polarised views about treatments, with some posts offering 'standard' advice and others offering advice that could lead to disagreement with health professionals. Many parents expressed their desperation to help their children's eczema and discuss the high cost of treatments. There were frequent encouragements to others to 'fight' for allergy testing and referral to a dermatologist.

##### **Consequences**

This study will provide an insight into some of the eczema treatment advice and support shared by parents/carers online. Findings will help academics and clinicians to better understand the perspectives that parents bring to their consultations and about their use of online resources for advice and support for eczema.

#### **4D.2 How does the adoption of digital health tools in primary care impact clinician-patient communication? Some lessons from the DECODE study into unintended consequences**

**Andrew Turner**, University of Bristol

*Michelle Farr, Jon Banks, Rebecca Morris, Sarah Blake, Sue Ziebland, Emma Hyde, Fiona Stevenson, Lorraine McDonagh, Fiona Hamilton, John Powell, Helen Atherton, Gemma Lasseter, Sian Jones, Bob Golding, Gene Feder, Lucy Yardley, Jeremy Horwood*

##### **Problem**

Digital health tools, such as online consultation systems and platforms giving patients online access to their medical records, are becoming commonplace. NHS England advocates their use as an essential part of a cost-effective health service to support patient access and care. However, their rapid development and adoption in primary care may lead to unintended consequences (positive and negative) that alter healthcare processes and outcomes. The DECODE study aims to support the adoption of digital health tools in primary care by understanding their unintended consequences. Here we focus on how online consultation systems and online access to health records provide new ways for clinicians and patients to interact with each other, and the consequences this has for clinician-patient communication and relationships.

##### **Approach**

Semi-structured individual interviews with 21 patients, 15 general practice clinicians and 8 managerial and administrative staff involved in the use of three types of digital health tools (online consultations, patient online access to health records). Thematic analysis was used to analyse the data using NVivo 11 software for data management.

##### **Findings**

Our interviews highlight how these technologies can make clinician-patient communication more transactional, meaning information flows one-way, or only short question-and-answer exchanges take place. For some, this achieved the intended consequences of improving efficiency and access to care. For example, through patients being able to check test results and medical information online, or use online consultation systems to update the practice or receive answers to simple requests. However, the unintended consequences of this shift included patients being uncertain how to interpret information in their medical record, increasing pressure on patients in relation to how they describe their issues, and patients being unclear who they are communicating with, leading to uncertainty and distress. This could be seen to challenge the valued element in traditional clinician-patient relationships; namely personal contact and the opportunity to explore medical concerns.

##### **Consequences**

Examining unintended consequences of digital tools that increase the scope and extent of transactional communication shows how prioritising convenience and access for some, can come at the expense of providing holistic, patient centered care for others. Developing an understanding of the unintended consequences of digital health tools is vital to aid their future successful implementation in primary care.

#### **4D.3 Optimisation of Eczema Care Online (ECO) a web-based intervention to support self-management: a qualitative think aloud interview study with parents or carers of children with eczema**

**Mary Steele**, University of Southampton

*Emma Teasdale, Katy Sivyer, Kate Greenwell, Miriam Santer, Daniela Ghio, Sylvia Wilczynska, Amanda Roberts, Lucy Yardley, Ingrid Muller*

##### **Problem**

Eczema is an inflammatory skin condition that affects approximately 1 in 5 children. Inadequate support for self-managing eczema can lead to poor adherence to treatments and poor control of eczema. An intervention designed to provide this support requires an in-depth understanding of the needs of the user.

##### **Approach**

This study aimed to optimise ECO (Eczema Care Online), a web-based intervention to support eczema self-management for parents/carers of children with eczema (aged 0-12 years). We recruited 24 parents/carers from primary care to take part in a qualitative think-aloud interview where they were asked to express their thoughts about the intervention as they used it. Participants were purposively sampled, based on child's age and eczema severity. Interviews were audio-recorded and transcribed. Analysis was carried out using a table of changes approach which provided a systematic method of assessing and addressing user feedback. Agreed modifications were tested in further think aloud interviews until no further significant problems occurred.

##### **Findings**

Early interviews identified issues with the usability and acceptability of the intervention. For example, information that was identified as unclear, repetitive or not relevant to many participants was either re-written or placed on an optional 'click-through' page. Participants who had been managing their child's eczema for longer did not think the intervention would be useful to them because they believed that they already knew a lot of the information. Participants also stated they wished to hear more from other parents/carers about their experiences of managing eczema so further quotes were added, adapted from previous interview data. In later interviews, after changes had been made, feedback was increasingly positive. Participants welcomed quotes from other parents/carers, saying this addressed feelings of isolation. Barriers such as a lack of time, and dislike of reading lengthy text were overcome with design including: allowing participants to immediately access content directly relevant to them; interactive pages with 'pop-up' boxes; short concise answers; and important information appearing in bold text. Persuasive information designed to engage participants early on improved expectations.

##### **Consequences**

This approach allowed us to gain an in-depth understanding of the perspectives of the participants. It was therefore possible to accommodate these to maximise intervention acceptability and feasibility. Participant feedback enabled us to improve the structure, length and navigation of the intervention. Content likely to enhance motivation and engagement, such as quotes, was added or emphasised. Some of these findings could be generalisable for digital interventions across a range of health conditions. The findings also suggest that the intervention could be a useful adjunct to clinical advice. Participants indicated that the intervention gave them a more complete understanding of managing eczema than would be possible during a short GP appointment.



#### **4D.4 Do Electronic Palliative Care Coordination Systems (EPaCCS) increase the chances of a good death?**

**Lucy Pocock**, University of Bristol

*Lydia French, Michelle Farr, Richard Morris, Sarah Purdy*

##### **Problem**

Continuity of care is particularly important for patients at the end of life and a lack of information sharing is often cited as a barrier to the provision of good quality end of life care. Nationally, the policy drive to address this has been the development of electronic palliative care coordination systems (EPaCCS). The purpose of EPaCCS are to provide a shared local record for health and social care professionals, with key information about an individual approaching the end-of-life, including their expressed preferences for care. Quantitative studies have shown striking differences in place of death with EPaCCS, but are potentially biased and confounded. Poor uptake among primary care staff has been cited as a barrier to success. Little research has been undertaken to understand how, and by whom, EPaCCS are being used and whether EPaCCS support patients' end of life wishes. Rigorous evaluation and research is needed to fully understand the benefits and harms of EPaCCS, with greater insight into patient and families' experiences. Aims: 1. Describe the characteristics of patients who die with an EPaCCS record, compared to patients who die without. 2. Explore the impact of an EPaCCS on the experience of providing, or receiving, end-of-life care for healthcare professionals, patients and carers.

##### **Approach**

This is a mixed-methods study, carried out within a realist paradigm, to evaluate the impact of an EPaCCS on end of life care as provided by a Clinical Commissioning Group (CCG) in England. The study was conducted in five phases:

1. Development of the initial programme theory.
2. Focus group with CCG stakeholder board.
3. Individual interviews with healthcare professionals, patients, current and bereaved carers.
4. Retrospective cohort study of routinely collected data on EPaCCS usage.
5. Data analysis and synthesis of study findings.

##### **Findings**

Data collection and analysis are still ongoing, but early findings are as follows: Only primary care staff can update the EPaCCS, which is frustrating for other healthcare professionals and results in additional workload for primary care. Patients think the EPaCCS concept is worthwhile, but they aren't aware of whether they have an EPaCCS record. It is assumed that information sharing prevents repeated conversations with patients. Our results suggest that it may stop conversations completely and that patients would rather have repeated conversations than no conversation.

##### **Consequences**

Healthcare professional access remains a fundamental problem and is a barrier to EPaCCS success. Patient awareness and involvement requires further exploration, including access to their own EPaCCS record.

#### **4D.5 The use of digital health interventions by people with type two diabetes and implications for health inequalities: A qualitative study**

**Sophie Turnbull**, University of Bristol

*Patricia Lucas, Alastair Hay and Christie Cabral*

##### **Problem**

Type 2 Diabetes (T2D) is a common chronic disease that shows social patterning in incidence and severity. The use of digital health technologies such as apps and websites has been suggested as a way to increase access to low-cost support. This may be a route to tackling inequalities. However, if underserved groups are excluded from digital technologies due to issues with access and usability, digital health interventions may exacerbate existing health inequity. This study aimed to gain an insight into how and why people with T2D use web-based self-care technology and how experiences vary between individuals and social groups.

##### **Approach**

A purposive sample of people diagnosed with T2D and experience of using a web-based intervention to help them self-care for T2D were recruited through diabetes groups, including groups that served Black, Asian and Minority Ethnic and lower income neighbourhoods. Semi-structured interviews were conducted in person and over the phone. Data were analysed thematically.

##### **Findings**

Twenty-seven people with T2D were eligible to enter the study, and data saturation on the key themes was reached after 21 interviews. The sample was diverse in terms of age (median 60 years, range 29-74), gender (11 men), socioeconomic situation and household income. Two thirds had a University degree or equivalent 17 participants identified as White British. Digital health interventions used included: websites, Blood Glucose Monitors (BGMs) with apps, wearable technology (e.g. Fitbits), access to electronic health records, diabetic specific and general health apps. Participants used their digital skills to learn about and navigate digital interventions. BGMs were particularly valued by the participants because they believed they provided greater control over their diabetes. There was a belief that the NHS rationed access to digital interventions (particularly BGMs) and not everyone who would benefit had access. Both material and social assets were used by participants to gain or support access to digital interventions. Participants used material assets to buy digital interventions. Participants used their social networks to learn about new interventions (in person and in the 'online world'). They also used their networks and social status to gain access to the interventions through gifting, use with personal trainers, discounts, free samples and quick replacements for faulty technology. Participants also described how a lack of digital skills could be barrier to the use of digital-health interventions, but could be overcome by drawing on support from 'tech buddies' in their social network.

##### **Consequences**

This research indicated that a person's internal (digital skills and knowledge), and external (material and social assets) resources influences whether they hear about, have access to, and can benefit from digital self-care interventions. If digital interventions are to decrease not exacerbate health inequalities, differences in internal, external, material and social resources must be considered.

#### **4D.6 Access Study: Realist evaluation of patient access to electronic medical test results services in general practice in England.**

**Gemma Lasseter**, University of Bristol

*Dr Ludivine Garside, Dr Emma Johnson, Dr Cecily Palmer, Dr Christie Cabral, Prof Alastair Hay, Prof Richard Huxtable, Dr Hannah Christensen*

##### **Problem**

In April 2020 GP service contracts in England will be updated so all registered patients will receive full online access to their electronic health record. This change demonstrates the ongoing commitment by NHS England to deliver world-class healthcare in the 21st century, with an emphasis on personalised medicine, increased autonomy and digital enablement of primary care. With over 300 million patient consultations in general practices annually, introducing digital tools to provide patients with their medical test results electronically has the potential to support self-management and deliver cost-effective improvements across a range of healthcare outcomes. Currently there is limited empirical evidence about either the positive or negative consequences associated with such services. Our study aims to evaluate the provision of electronic medical test result services in general practices across England to understand “what works, for whom, in what circumstances and why”.

##### **Approach**

Using a realist evaluation approach to explore the delivery of electronic medical test result services in general practices in England. The study has three phases: i) a questionnaire survey to assess electronic medical test result service provision (approx. 450 practices), ii) retrospective patient data collection to determine if patients who access their results electronically differ from those patients who do not (approx. 7 practices), and iii) qualitative work with patients and staff to ascertain experiences and opinions of using (or not) electronic medical test result service (approx. 7 practices).

##### **Findings**

A total of 439 completed questionnaires were received from general practices across England. 70% of practices already offered electronic test result services, though only 14% monitored patient usage of services. 72% of respondents felt using electronic test result services was ‘easy’ or ‘very easy’ for GPs at the practice, but 18% of practices said safety issues had been raised concerning adult patients receiving or accessing electronic test results. Evidence from the survey informed the subsequent retrospective patient data extraction and qualitative workstreams, which are due to be completed in Feb 2020.

##### **Consequences**

Evidence from the Access study will be directly fed back to the Department of Health and Social Care in order to inform future policy decisions, commissioning and provision of electronic medical test results service in general practice across England in the future.

## **5A.1 GPs' views and experiences of patients with an at-risk mental state (ARMS) for psychosis**

**Daniela Strelchuk**, University of Bristol

*Daniela Strelchuk, Nicola Wiles, Stanley Zammit\*, Katrina Turner*

### **Problem**

Psychotic illnesses are one of the leading causes of disability worldwide. Early intervention in people with an at high risk mental state (ARMS) for psychosis can decrease the rates of transition to psychosis. GPs play a key role in the identification of ARMS, as they are usually the first point of contact with health services. However, very few studies have explored GPs' awareness of ARMS. This study aims to explore GPs' views and experiences of identifying patients with ARMS, and the barriers and facilitators to identification in primary care.

### **Approach**

In-depth interviews were held with 20 GPs working in the South West of England. A topic guide was used to ensure consistency across the interview. It covered the following areas: recognition, identification, management of ARMS patients, and facilitators and barriers to early identification. All the interviews were audio recorded, transcribed verbatim and analysed thematically.

### **Findings**

Some GPs were unsure what was meant by 'ARMS'. They asked if we were referring to people who had certain risk factors for psychosis (i.e. illicit drug use), people at risk of a psychotic relapse, or people with mild psychotic symptoms. When providing GPs with a definition, some GPs still struggled to recognise who might be patients with ARMS, as most of the patients they had seen were either in a florid state or had recurrent psychosis. Other GPs mentioned that in most cases, mild psychotic symptoms occurred in the context of other mental health illnesses, and these patients would not be placed in a separate diagnostic category. There were also GPs, however, who said that they were familiar with the term ARMS, but that they rarely saw these patients. The facilitators and barriers to ARMS identification related to patients (i.e. patients not consulting or disclosing psychotic symptoms), GPs' knowledge of ARMS, and working in the NHS (i.e. a lack of continuity of care).

### **Consequences**

Most GPs are unfamiliar with the term ARMS and would not identify patients as being at risk of developing psychosis. GPs' ability to identify patients with ARMS was hindered by patients not disclosing symptoms, and GPs' knowledge of this condition and specific patients.

## **5A.2 CARMEN: Evaluation of a Point of Care Device in improving physical health check uptake in two community mental health teams**

**Joseph Butler**, University of Oxford

*Simone de Cassan, Belinda Lennox, Phillip Turner, Margaret Glogowska, Thomas Fanshawe, Gail Hayward*

### **Problem**

Patients with Severe Mental Illness (SMI) have a life expectancy 15-20 years below that of the general population, mediated predominantly by the complications of poor cardiovascular health. Physical healthcare for this population is shared between General Practice (GP) and Community Mental Health Teams (CMHTs) and encompasses a NICE-recommended annual physical health check, to screen for cardiovascular complications. Audit findings in 2017 across the South of England show poor physical health check completion (38%), typically because HbA1c and Lipid Panel blood tests were omitted. Traditionally, patients are advised to attend their GP surgery for these tests, which can be a challenge for patients with SMI. There is a growing market of POC devices able to calculate an HbA1c or Lipid Panel in rapidly from 'fingerprick' samples of blood at, or near the site of the patient. The Cardiovascular Monitoring in Mental Health (CARMEN) project hypothesised that test uptake would be improved by implementation of a 'Point of Care' (POC) blood testing device in two CMHTs.

### **Approach**

We embedded the 'Afinion' device into an Early Intervention Team and an Adult Mental Health Team in Oxfordshire for six months. Training was provided to care coordinators with ongoing support to facilitate engagement with the device. We compared rates of blood test and full physical health check completion in the intervention teams to a matched early intervention team and adult mental health team in Buckinghamshire. We performed semi-structured interviews with patients receiving POC-augmented care and clinicians from the intervention teams.

### **Findings**

Data showed that whilst the Adult Mental Health team did not engage with the device and saw no change in outcomes, the Early Intervention Team did engage and increased rates of physical health check completion from 22.6% to 40.3% of their caseload per 6 months. Completion in the control CMHT was 7.8%. Similar trends were seen in rates of HbA1c and Lipid Panel completion. Qualitative interviews revealed universal patient support for POC and diverse attitudes to the role of the mental health teams in providing physical healthcare. We explored how clinicians engaged and why they didn't engage with the device, and how access to POC modulated the therapeutic relationship.

### **Consequences**

Our findings show that using POC for Physical Health Checks is acceptable to patients with SMI and mental health care clinicians, many of whom are from a non-clinical background. In teams where it is well adopted, POC testing can improve physical health check completion in the SMI population, although our qualitative findings highlight important considerations for maximising clinician engagement.

### **5A.3 Improving psychosis prediction using primary care consultation data (MAPPED Study)**

**Sarah Sullivan**, University of Bristol

*Daphne Kounali, Richard Morris*

#### **Problem**

Clinical and social outcomes of psychosis are often poor, and many risk factors are difficult to modify. Duration of untreated psychosis (DUP) has been linked to poorer prognosis and is potentially modifiable. Speedier referral from primary care to secondary mental health services is an important component of DUP. We previously found that specific prodromal characteristics were strongly associated with a later diagnosis of psychosis; attention deficit hyperactivity disorder-like problems, bizarre behaviour, blunted affect, depressive-like problems, role functioning problems, social isolation, mania, obsessive compulsive disorder-like problems, disordered personal hygiene, sleep disturbance and suicidal behaviour (including self-harm), cannabis use and cigarette smoking. The positive predictive value of these characteristics varied with age and gender. We also found increasing consultation frequency for some of the prodromal characteristics over time before diagnosis and heavier use of primary care services among people later diagnosed with psychosis than among those who did not develop psychosis. We have used these prodromal characteristics as candidate predictors for the development and validation of a prediction model for psychosis for primary care.

#### **Approach**

Study Design: Prospective cohort seeking help for mental health problems and a follow up of  $\geq 5$  years. Data source: Clinical Practice Research Datalink linked to Hospital Episode Statistics for diagnosis outcomes. Sample: 300,000 patients without previous coded diagnosis of psychosis but who consult for any other mental health problem. Primary outcome: ICD coded diagnosis of psychotic disorder. Period of risk is from first recorded consultation for a non-psychotic mental health problem until first recorded psychosis diagnosis. Predictors: Characteristics described above, age, gender and consultation frequency overall and per characteristic. Statistical Analysis: Odds ratios were calculated for each characteristic and entered into a logistic regression model. Area under ROC curve (AUROC) was calculated, together with sensitivity and specificity for exceeding the upper quartile of the risk distribution.

#### **Findings**

355 people were diagnosed with a psychotic disorder during follow up with a median follow-up of 7.9 (IQR 6.5, 8.9) years, resulting in an incidence of 1.5 per 10,000 person years (95% CI [1.4,1.7]) The most common diagnoses were; unspecified nonorganic psychosis (26.5%), delusional disorder (22.3%) and schizophrenia (16.6%). Of the cases 54% were female, mean age was 44 years, 88% were White and 33% were in the lowest deprivation quintile. Symptom prevalence ranged from 0.02% (bizarre behaviour) to 41.8% (depressive symptoms). Unadjusted odds ratios for the association between symptoms and outcome ranged from 36.5 (bizarre behaviour) to 1.01 (cannabis related problems). Prognostic scores integrating these predictors along with age and sex yielded a sensitivity 57.8%, specificity 75.2% with AUROC=0.7.

#### **Consequences**

These initial results suggest that the specified predictors are promising candidates for a risk score for psychosis and have higher predictive power than current psychosis risk prediction tools.

#### **5A.4 The relationship between antipsychotic prescribing and the proportion of those with psychosis with a care plan: a cross-sectional study of practice-level data in England.**

**Ali Ridha**, University of Warwick

*Ali Ridha, Rhian Stanbrook, Will Proto, Sarah Hillman, Dan Todkill, Saran Shantikumar*

##### **Problem**

The NHS Mandate states that every person with a mental health condition should be offered a personalised care plan as soon as possible after diagnosis, including those living with schizophrenia and bipolar disorder. With the provision of a holistic approach to individuals living with psychotic disorders, it is possible that those with a care plan also have a more rationalised approach to the medication they are prescribed. In this study, we investigate the association between the proportion of people with a diagnosis of a psychotic disorder who have a care plan and the prescribing rate of antipsychotics and lithium in primary care practices in England.

##### **Approach**

Monthly primary care prescribing data for 2018, as well as practice age and sex profile, were downloaded from NHS Digital. Prescribing by practice was aggregated over the year and filtered for antipsychotics and lithium using British National Formulary (BNF) codes. Practice-level Index of Multiple Deprivation (IMD 2015) scores were obtained from Public Health England. Quality Outcomes Framework (QOF) data for 2017/18 were obtained for the proportions of each practice with a diagnosis of psychosis, dementia and depression. Multiple linear regression was used to examine the association between the proportions of those with psychosis with a care plan and antipsychotic/lithium prescribing, after adjusting for practice sex (% male), older age (% >65s), practice list size, practice-level deprivation (using the Index of Multiple Deprivation [IMD] score), and the proportions of each practice with psychosis, dementia and depression. Practice-level prescribing was defined as items of antipsychotics or lithium per 1000 registered patients in 2018.

##### **Findings**

On univariate analysis, overall antipsychotic/lithium prescribing rates were negatively associated with the proportion of individuals with psychosis with a care plan, with less prescribing in practices with a greater proportion of individuals with a care plan (incidence rate ratio [IRR] 0.88, 95% CI 0.83-0.93, for quintile [Q] 5 vs. quintile 1). The proportion of individual with a care plan remained an independent predictor of prescribing after adjusting for all the other variables included in the model (adjusted IRR [aIRR] 0.80, 95% CI 0.75-0.85 for Q5 vs. Q1). Incidentally, IMD score was also an independent predictor of prescribing, with more prescribing in more deprived practices (aIRR 1.67, 95% CI 1.58-1.76, Q5 vs. Q1).

##### **Consequences**

These results suggest that practices with greater proportions of individuals with a diagnosis of psychosis with a care plan tend to prescribe fewer antipsychotics/lithium. It is possible that practices that are more engaged with care plans are more likely to rationalise and optimise antipsychotic/lithium prescribing. Further work with individual-level patient datasets is required to confirm this result and to explore other possible underlying reasons for this association.

## **5A.5 Has the increased risk of cardiovascular mortality with Severe Mental Illness (SMI) compared to the general population changed over time?**

**Amanda Lambert**, University of Birmingham

*Prof Tom Marshall, Dr Helen Parretti*

### **Problem**

Previous reviews of the association between severe mental illness (SMI) and cardiovascular disease (CVD) have mainly focussed on single diagnoses (schizophrenia, bipolar disorder (BD)) or outcomes (coronary heart disease, stroke) and either mortality or morbidity. Results have been inconsistent although SMI appears to increase risk of CVD. Our study aimed to conduct a comprehensive up-to-date systematic review of the relationship between SMI and CVD and explore changes in the relationship over time. Here we report effects on CVD mortality.

### **Approach**

We searched for studies comparing CVD incidence or mortality in SMI compared to controls in a systematic search of MEDLINE, EMBASE, PsycINFO, and CINAHL, Web of Science and ZETOC conference abstracts and Cochrane CENTRAL database. We used SMI and CVD search terms, without language or date restriction. Bibliographies of included studies were also searched. Two independent reviewers screened titles and abstracts for initial selection, then reviewed full texts of selected studies and decided on inclusion. Data on risk of CVD for SMI versus controls from included studies was extracted. Effects were pooled using random effects meta-analysis and sources of heterogeneity between studies explored with meta-regression.

### **Findings**

Reviewers screened 9591 titles and abstracts, initially selected 303 full texts and included 58 studies in quantitative analysis of CVD mortality. CVD mortality risk was increased for both schizophrenia (SMR: 1.96, 95%CI: 1.72-2.23) and bipolar disorder (SMR: 1.65, 95%CI: 1.53, 1.78). CVD mortality risk for schizophrenia was higher than for BD (RR: 1.19, 95%CI: 1.04-1.36). Results were similar for CHD and stroke mortality when considered separately. However, there was significant heterogeneity between studies, partly explained by an increased risk in studies conducted since the 1990s. More recent studies reported larger associations between SMI and cardiovascular mortality than earlier studies: 1990s vs 1950s-70s, RR: 1.44 (95% CI: 1.13-1.83); 2000s vs 1950s-70s, RR: 1.30 (95% CI: 1.05-1.62); 2010s vs 1950s-70s, RR: 2.41 (95% CI: 1.41-4.13).

### **Consequences**

SMI is associated with a significantly increased risk of CVD-related mortality which appears to be increasing over time. Although improved physical health for people with mental health conditions is reflected in UK health policy, more needs to be done to understand the reasons for the higher risk in CVD, to identify people with SMI at risk of dying from CVD and to put appropriate interventions in place to reduce the risk.



## **5A.6 Do physicians in primary care and mental healthcare professionals in America treat marginalized patients holistically? A literature review.**

**Angel Bierce**, University of Bristol

### **Problem**

Physicians in primary care need to look holistically at patients' lives and community to efficiently treat transgenerational transmission of trauma (TTT), which is often not considered in diagnosis and treatment plans. TTT is the theory that trauma can be transferred from the first generation of trauma survivors to their offspring and onward to further generations. Evidence suggests that both prenatal and in utero stressors can influence the offspring's ability to respond to stress and their susceptibility to PTSD through miRNA, hippocampus size, and cortisol levels. Also, a lineage that has generations compound? stressed (like many minority groups) can have these effects at a greater magnitude. One aspect that the literature has addressed is that it's not always a grand catastrophe that can cause the occurrence of these epigenetics. Stressors could be a result of abuse, food insecurity, lack of financial stability, and more 'every day' occurrences. Since these stressors happen more often it is important that mental healthcare and primary care providers find treatment for 'common' people, rather than focusing on cisgendered, heterosexual white men. The aim of this literature review was to identify evidence-base on how TTT and lesbian, gay, bisexual, transgender, and queer patients are being cared for and identify any discrepancies in primary healthcare regarding treatment of minorities suffering from TTT.

### **Approach**

A search was conducted across multiple databases to identify relevant papers to conduct a qualitative study. First, papers relating to transgenerational transmission of trauma were reviewed to establish a working definition and understand circumstances in which it occurs. Then, papers investigating natural disasters and race were reviewed to compare how different races were impacted, and how primary care, or lack of, influenced the road to recovery. Lastly, a search for possible resources for marginalized communities was conducted and came up short due to there being an insufficient supply; One CBT manual for "therapy across cultures" and one LGBTQ+ manual related to conversion therapy. A chapter in one book is simply not enough to cover the differences in cultures, somatic symptoms, and the complexities of others' lives.

### **Findings**

**Findings** focused on the social differences, as well as lack of primary care received by ethnic minorities and members of the queer community. The literature review found that there was a lack of treatment and resources in primary care and cognitive behavioural therapy manuals to treat marginalized groups suffering from TTT.

### **Consequences**

Moving forward, it is important to examine race, sexual orientation, and identity as a factor in primary and mental healthcare to improve treatment of marginalized people. This review contributes to a better understanding of what TTT is and identify potential issues in primary mental healthcare treatment when the individual is not viewed and treated holistically.

### **5B.1 How can primary care clinician's optimise patient expectations about OA management? An exploratory study investigating patient perspectives about positive framing in the OA consultation.**

**Emily Lyness**, University of Southampton

*Felicity L Bishop, Jane Vennik, Jeremy Howick, Stephanie Hughes, Kirsten Smith, Mohana Ratnapalan, Christian Mallen, Leanne Morrison, Lucy Yardley, Hajira Dambha-Miller, Geraldine Leydon, Paul Little, Hazel Everitt.*

#### **Problem**

Osteoarthritis (OA) is a common condition causing pain and reduced mobility that can have a significant impact on people's lives. It has a growing prevalence in the UK due to rising risk factors and patients frequently present to primary care practitioners. Experimental studies suggest that enhancing clinicians' communication of positive expectations regarding the management of OA may reduce patient experience of OA pain and encourage positive outcome expectations. It is unclear, however, how this fits into real world practice and there is limited insight into patient's views about the role of expectation management. This qualitative study explores the views of patients with OA on the use of positive messages in the primary care consultation to shape outcome expectations.

#### **Approach**

This study was embedded within Empathica; a SPCR funded project developing a digital intervention to enhance practitioner skills in empathic communication and expectation management. Participants were recruited from primary care practices with the assistance of the Clinical Research Network (CRN) to include patients over 45 who had consulted for hip/knee OA in the last 12 months. 18 participants were purposefully sampled to include a range of age, gender, severity of OA and deprivation index. Semi-structured interviews were conducted using a combination of vignettes and open-ended questions to elicit participants' views. Two case vignettes were developed with input from a PPI representative to illustrate different clinician approaches to expectation management in a primary care OA consultation. One vignette depicted a neutral factual approach, the other included clear positive messages and phrases informed by the literature and expert opinion. The topic guide was developed inductively with open-ended questions to allow flexible responses and explore developing themes. Both vignettes were presented to each participant in a random order to avoid bias. Interviews were audio-recorded, transcribed and anonymised. Thematic data analysis was conducted using an inductive approach with techniques from grounded theory using NVIVO software.

#### **Findings**

Emerging themes appear to suggest that positive messages need to be combined with an empathic clinical approach to be effectively delivered. If this balanced approach could be achieved patients felt it may enhance patient optimism about management and their ability to control health behaviours, and therefore symptoms. There was however some scepticism whether this was achievable in the time and resource constrained environment of NHS primary care.

#### **Consequences**

We hypothesise that applying experimental theory of delivering positive messages is likely to be challenging within the real world context due to the complex interplay between chronic disease management and the current pressures on primary care service delivery. However, in the correct setting may enhance the patient engagement with self-management of their disease. Analysis will be complete and full results and conclusions will be available at the conference.

## **5B.2 Patient perspectives of empathic and positive communication for osteoarthritis in Primary Care: an analogue study**

**Jane Vennik**, University of Southampton

*Pranati Misurya, Felicity Bishop, Emily Lyness, Stephanie Hughes, Kirsten Smith, Mohana Ratnapalan, Hazel Everitt, Jeremy Howick, Paul Little, Christian Mallen, Leanne Morrison, Lucy Yardley, Hajira Dambha-Miller.*

### **Problem**

Research has shown that empathic and positive communication can reduce pain, increase quality of life, and improve satisfaction with care for patients with osteoarthritis. However, there is limited understanding about patient's views and insights into empathic and optimistic communication in a primary care consultation. This analogue study is part of Empathica; a SPCR-funded programme of work developing brief training for primary care practitioners in empathic and optimistic communication.

### **Approach**

We developed and filmed two primary care consultations for osteoarthritis (OA); one enacting the Empathica-trained approach which incorporated examples of evidence-based verbal and non-verbal behaviours, and the other enacting a 'neutral' or normal-styled consultation. A purposively-varied sample of 15 OA patients watched the two filmed consultations in random order. After each consultation, patients rated the GP's clinical empathy using a modified Consultation and Relational Empathy (CARE) measure and took part in a semi-structured interview. Descriptive statistics were used to present the questionnaire data. Interviews were transcribed verbatim and were analysed using thematic analysis. NVIVO was used to manage the data.

### **Findings**

Participants rated the Empathica-style consultation generally more positively than the neutral consultation (mean CARE measure 42.93 vs 16.67). With the Empathica-style consultation, patients identified key elements considered to enhance the interaction including the GP showing care and respect; demonstrating knowledge of the patient; active listening; being encouraging and positive; open body language and good eye contact. Key elements of the neutral consultation that patients thought impaired the consultation included the GP not showing she was listening; being dismissive of patient's concerns; lack of clarity about likely outcomes. Participants reported that the patient appeared more satisfied with the Empathica-style consultation and considered them more likely to engage in the management plan. However, participants could perceive little difference in GP satisfaction between the two consultations.

### **Consequences**

These findings highlight elements of empathic and optimistic communication that are acceptable to patients and could enhance the primary care consultation for OA. It is important to identify key elements that primary care practitioners can include without adding time to the consultation. These results have informed development of the Empathica intervention which aims to enhance practitioner empathic communication, and ultimately improve levels of OA pain and quality of life for patients.

### **5B.3 What are GPs perspectives, experiences and challenges when supporting patients with possible endometriosis in primary care?**

**Sharon Dixon**, University of Oxford

*Amelia Talbot, Abigail McNiven, Lisa Hinton*

#### **Problem**

Endometriosis is the second most common gynaecological condition in the UK, affecting around 1.6 million women of reproductive age, and 11% of women worldwide. In the UK, women with endometriosis typically experience a delay of approximately 7-10 years before receiving a diagnosis. Primary care is where women often first seek medical help, making this setting pivotal in women's pathways to diagnosis and treatment. We are not aware of previous work exploring English GPs perspectives on supporting women with suspected endometriosis.

#### **Approach**

This qualitative study explores what GPs identify as important considerations when they are caring for women who present with symptoms that raise the possibility of endometriosis. We aim to undertake semi-structured interviews with 40 GPs working in England, based around a fictional scenario of a woman presenting to primary care with symptoms suggestive of possible endometriosis. We have interviewed 38 GPs from five LCRN regions to date.

#### **Findings**

Having completed 38 interviews (26 female, 12 male), we are in the initial stages of our analysis. Emerging themes include; balancing symptom control with the potential value (and risks) of further investigations, the role of primary care in supporting women with possible endometriosis, the value of on-going primary care therapeutic relationships, challenges in talking about endometriosis, and the potential advantages and risks of an endometriosis label. GPs described that shared decisions around women's priorities (e.g. age, fertility, whether she was seeking a diagnostic label) were pivotal in navigating treatment and referral. The management of teenagers and peri-menopausal women raised uncertainties for many GPs. Resources, education and services that GPs would value included resources based on symptoms (not diagnoses), awareness raising education, clear guidance for primary care, and access to advice. Many GPs described utilising trials of treatment as both a therapeutic intervention and diagnostic tool. There may be a mismatch between how this is perceived by GPs and women. Continuity of care facilitated considering endometriosis as a possible diagnosis. If there was not continuity, strategies suggested to mitigate against delays in diagnosis included automated prompts in GP IT systems, coding suspected endometriosis, and clear written plans in GP notes.

#### **Consequences**

GPs reflections on pathways to diagnosis were primarily based around what they identified as women's priorities. GPs described balancing the need for (and risks of) investigations and a diagnosis against adequate symptom control. Because endometriosis requires secondary care diagnosis, challenges for primary care include knowing when to consider it, when to refer, and the long-term support and management of women, once they have had a diagnosis. The potential added value of referral for a diagnosis, if symptoms were well controlled by primary care measures, was an important consideration, notably for younger women and teenagers.

## **5B.4 An Exploration of Compassionate Care from the Perspectives of Older People, Carers and Service Providers**

**Molly Curtis**, University of South Wales

*Dr Juping Yu, Dr Carolyn Wallace, Mr David Williams*

### **Problem**

Following the Francis report (2013), delivering compassionate care has been implemented as a core value for health and social care services. However, the literature indicates that there is a lack of agreement and consistency regarding the definition of compassion. This study aimed to explore how the concept of compassion is conceptualised in the context of health and social care services. The study aims included: identifying key elements of compassionate care; comparing similarities and differences between participants' perspectives; and developing a conceptual framework of compassionate care.

### **Approach**

Group Concept Mapping (GCM) was used as the research method to gain consensus on a definition of compassionate care from the perspectives of older people, carers and service providers. Data were collected through face-to-face workshops or online. In-depth interviews were also conducted with frail older people, such that the perspectives of those who could not attend a workshop were included in the study. Data collection for GCM involved 3 tasks: "brainstorming", "sorting" and "rating".

"Brainstorming" involved asking participants to generate ideas about compassionate care. Transcripts from in-depth interviews also contributed to the "brainstorming" task. For "sorting", participants were asked to sort a collection of statements generated from "brainstorming" into categories, and to give each category a label. For "rating", participants were asked to rate how important they believed each statement to be, and how frequently they experienced it in the care they had receive and/or provided.

### **Findings**

The data were analysed to produce a point and cluster map. The cluster map represents participants' responses in the "sorting" task. The steering group interpreted the data, and agreed that the concept of compassionate care is comprised of 8 clusters: "Non-judgemental", "Excellent skills which set them apart", "Above and beyond", "Genuine care giving", "Show the person is valued", "Empathetic", "Thoughtful" and "People-centred care".

### **Consequences**

This study contributes a definition of compassionate care from the perspectives of older people, carers and service providers in the context of health and social care services. This study had produced a conceptual framework of compassionate care, consisting of 8 elements: "Non-judgemental", "Excellent skills which set them apart", "Above and beyond", "Genuine care giving", "Show the person is valued", "Empathetic", "Thoughtful" and "People-centred care". This study is unique both in the UK and internationally. The resulting conceptual framework may be utilised further to develop a novel tool to measure compassionate care.

## **5B.5 Communication between patients and primary care providers after discharge from hospital - a scoping review**

**Rachel Spencer**, University of Warwick

*Harjot Singh*

### **Problem**

Care transitions from secondary to primary care are a potentially risky part of the patient journey, particularly for older patients with multi-morbidity and polypharmacy. Our recent work shows that management in primary care after discharge from hospital causes harm to 8% of this vulnerable group of patients. Communication problems between patients and primary care providers are at the heart of many errors and subsequent harms which occur. Improved communication might also be a strategy to reduce the 22.8% rise seen in emergency re admissions between 2012 and 2016. There are 3 participants in the communication triangle at care transition (patients, primary care providers and secondary care providers) and yet most current literature focuses on the latter two.

### **Approach**

In order to address this communication deficit we plan to develop a tool which will help older patients and their carers communicate with their primary care provider after discharge. In order to begin a co-production process to create this tool a systematized review is being conducted to inform the possible content of this tool. We used three search stems relating to: 1-Primary care or transitional care setting, 2-Discharge events and 3-facilitation of communication. We deliberately did not limit our findings to the older patient population (in order not to miss any transferable literature). The review uses a dual reviewer system and adheres to best principles described by Cochrane for systematic reviewing but due to the nature of the research questions is essentially a scoping review.

### **Findings**

The review is in progress and will be reported in early 2020. We searched 5 databases which included (CINAHL, Cochrane, Embase, MEDline, Web of Science) on 7/10/19 with no limitations in terms of language or date of publication. 716 titles were considered after removal of duplicates. From these 227 abstracts were selected. We anticipate that around 90 papers will meet the criteria for full review and these papers will be quality assessed prior to extraction of transferable content.

### **Consequences**

The findings from the review will be used to inform the creation of a unique intervention to improve patient's communication with their primary care provider after discharge from hospital. Improving health efficacy is a key, and as yet, under-explored strategy to make care transitions safer for older patients. This work represents the very beginning of a programme of work which seeks to give patients a stronger voice as the 3rd point of the triangle of care transition communication.

## **5B.6 Discussions regarding dental recall interval: preferences for shared decision-making in dentistry**

**Hannah Scott**, Cardiff University

*Hannah Scott, Anwen Cope, Fiona Wood, Natalie Joseph-Williams, Anup Karki, Candida Lovell-Smith, Emyr Roberts, Ivor Chestnutt*

### **Problem**

In 2004, the NICE published guidelines recommending that dentists should tailor the interval between patients' check-ups according to their disease risk. This would mean that those patients who were deemed low risk should be recalled at 12-24 months, instead of every six months, subsequently freeing up resources that could be used to improve access to NHS dental care. Research has shown, however, that few dentists implement risk-based recall guidelines. Since the publication of guidelines has not changed dental recall behaviours, it is important to understand how these decisions are made and the role patients play in them. Shared decision-making, whereby the patients and practitioners work in partnership to make decisions about care, is now considered an integral part of medicine and dentistry. It is therefore important to understand the barriers and facilitators to both risk-based recall intervals, from the point of view of both dentists and patients, and the implementation of shared decision-making techniques into consultations about dental recall.

### **Approach**

Semi-structured telephone interviews were conducted with 25 dentists and 25 NHS dental patients, to explore current practices regarding recall interval setting, and barriers and facilitators to shared decision-making. This work was undertaken as part of a study to develop a patient decision aid that can be used by dentists and patients to support dental recall interval setting in general dental practice.

### **Findings**

Dentists believed that shared decision-making was an important part of their practice, despite a lack of clarity of how this differed from informed consent. Reasons for involving patients in decisions about their care largely centred on the desire to encourage patients to take ownership of their health, as well as mitigating the threat of litigation faced by dentists. Dentists' perceptions of their patients' willingness and ability to engage in shared decision-making varied; dentists reported some patients wanting to be heavily involved in decisions about their dental care, and others wanting the dentist to make the decisions. Some patients were not aware that dental recall intervals could be anything but six months and had never previously discussed their recall interval with their dentist. Some wanted to be involved in a discussion with the dentist and demonstrated prior involvement in decisions about their restorative dental care. However, others were of the opinion that the dentist was the 'expert' and should therefore be the one making the decision, or expressed ambivalence regarding the frequency of their dental appointments.

### **Consequences**

These findings highlighted a need to support patients and practitioners to collaboratively engage in shared decision-making in dental care. They will inform the development of a concise and patient-friendly shared decision aid suitable for use in busy NHS general dental practice.

## **5C.1 The impact of NHS England prescription guidance for Clinical Commissioning Groups on prescribing rates of simple analgesia in primary care.**

**Hannah Reichel**, University of Warwick

*Hannah Reichel, Rhian Stanbrook, Will Proto, Pooja Bakhshi, Sarah Hillman, Dan Todkill, Saran Shantikumar*

### **Problem**

In the NHS in England in 2017/18, £17.4 billion was spent on pharmaceutical drugs, £8.9 billion of which was from GP prescriptions. In March 2018, as a measure to rationalise and optimise spending, NHS England published guidance for Clinical Commissioning Groups (CCGs) detailing a list of medications that could be bought over the counter and that should in most cases not be prescribed. This included simple analgesia. In this study, we investigate the impact of this guidance on the prescribing rates of simple analgesia in primary care. In addition, we explore whether CCGs have actively implemented this guidance, and whether there is any evidence that the guidance has created a health inequality.

### **Approach**

The simple analgesics included were oral paracetamol; oral ibuprofen and topical non-steroidal anti-inflammatory drugs (NSAIDs). Practice-level prescribing data from January 2015 to March 2019 were obtained from NHS Digital and filtered for simple analgesia by use of their British National Formulary (BNF) codes. Linking the resulting data to quarterly practice list sizes allowed a calculation of monthly prescribing rates across England. Taking the “intervention” time point to be March 2018, an interrupted time series analysis (ITSA) was conducted to assess the effect of the intervention, both with and without an adjustment for seasonality. To explore a potential health inequality, we examined the association between practice-level prescribing rates and deprivation (using the Index of Multiple Deprivation [IMD] score) both 12 months before and 12 months after the intervention, using multivariable Poisson regression, adjusting for sex, proportion of over-65s and practice list size. Freedom of information (FOI) requests were submitted to all CCGs to elicit to what extent each had implemented the NHS England guidance.

### **Findings**

Data analysis is currently underway. Initial results suggest that the intervention was associated with a ~4% reduction in prescribing rate of simple analgesia overall (adjusted incidence rate ratio [aIRR] 0.956,  $p < 0.001$ ) after accounting for an underlying time trend and seasonality. Practice-level prescribing rates were significantly associated with IMD score, although the strength of this association was similar before and after the intervention (aIRR 2.44 [95% CI 2.33-2.57] pre-intervention and 2.42 [95% CI 2.30-2.56] post-intervention). All 195 CCGs responded to the FOI request. The results of these will be presented, along with ITSA analyses of individual simple analgesics.

### **Consequences**

The results so far suggest that the NHS England guidance has resulted in a reduction in the prescribing of simple analgesia, without creating an additional health inequality. The value of varying strengths of implementation by CCGs requires exploration



## **5C.2 Amitriptyline at Low-dose and Titrated for Irritable Bowel Syndrome as Second-line Treatment (The ATLANTIS study): A Double-blind Placebo-controlled Trial**

**Hazel Everitt**, University of Southampton

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### **Problem**

Irritable Bowel syndrome (IBS) is common, causing abdominal pain, bloating and changes in bowel habit that can significantly affect quality of life. Many people suffer ongoing troublesome symptoms despite having been offered first line treatments. NICE IBS guidelines recommend low dose amitriptyline as a potential second-line treatment option but evidence for its use is limited and it is infrequently prescribed for IBS in primary care. The aim of this NIHR HTA funded ATLANTIS trial is to determine the clinical and cost-effectiveness of low-dose amitriptyline as a second-line treatment for IBS in primary care.

### **Approach**

ATLANTIS is a randomised, multi-centre, parallel-group, two-arm, double-blind, placebo-controlled trial of low-dose amitriptyline as a second-line treatment for people with irritable bowel syndrome (IBS) in primary care. It includes an internal pilot and a nested, qualitative study. The aim is to recruit 518 participants from approximately 75 GP surgeries in 3 geographical areas: West Yorkshire, Wessex and , West of England, with the support of local Clinical Research Networks. Participants will be identified by searching GP lists for people with a diagnosis of IBS and sending of invite letters or by opportunistic recruitment when people present to the GP surgery. Those eligible after screening will be randomised to receive 6 months of trial treatment, taking either 1 to 3 tablets (10-30 mg) of amitriptyline or placebo once-daily. Participants will be able to titrate their dose (between 1 and 3 tablets) depending on symptoms and side effects. At 6 months participants will have the option to continue treatment for an additional 6 months (12 months total treatment). Outcome measures will be self-completed online or on paper (participant preference) at 3, 6, and 12 months following randomisation and a weekly question about relief of IBS symptoms. The primary outcome is IBS symptom severity score at 6 months. Secondary outcomes include the work and social adjustment scale, hospital anxiety and depression score (HADs), subjects global assessment of relief of IBS symptoms , quality of life using EQ5D and health care resource use to determine QALYs. A sub-sample of participants and recruiting GPs will undertake two semi-structured telephone interviews at 6 and 12 months to identify factors affecting the prescribing, acceptability and adherence of low-dose amitriptyline, and explore factors that might shape wider use of amitriptyline for IBS.

### **Findings**

Trial set up and ethical approval has been completed and recruitment has begun. Reflections on the challenges of setting up this large RCT and initial recruitment figures will be presented at the conference

### **Consequences**

This large RCT will provide robust evidence on the clinical and cost effectiveness of amitriptyline for IBS in the primary care population and enable patients and clinicians to make better informed treatment decisions.

### **5C.3 Understanding the gap between prescribing guidelines and behaviour: a qualitative study in UK general practice**

**Mary Carter**, University of Bath

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#### **Problem**

Despite increasing expenditure on medicines and widespread availability of evidence-based guidelines to inform medicines' rational use, considerable variation exists in guideline uptake and application by clinicians. The range of health professionals prescribing in general practice may contribute to this variation. Recent NHS policy supports pharmacists' inclusion in general practice teams; pharmacists' professional skills are viewed by some as suited to fostering an evidence-based approach to prescribing. There is a need to identify the key determinants of current prescribing behaviour before developing strategies which reduce variation and promote evidence-based prescribing.

#### **Approach**

To investigate influences on prescribing in general practice and specifically to explore: 1. Determinants of prescribing behaviour from prescribers' perspectives, 2. Use/influence of National Institute of Health and Care Excellence (NICE) and other guidelines on prescribing, 3. Role/potential of general practice-based pharmacists (PBPs) to promote evidence-based prescribing. Semi-structured qualitative telephone interviews and focus groups were conducted with two samples: (i) general practice-based prescribers: General Practitioners (GPs), nurses and PBPs (ii) key informants: individuals working in NHS roles, with responsibility for influencing and monitoring general practice prescribing. A target sample matrix was developed to reflect a range of prescribers from various professional backgrounds and diverse general practice characteristics, and key informants working in assorted local, regional and national roles. Recruitment was through local and regional contacts and snowball sampling. Interviews and focus groups were audio-recorded and transcribed verbatim. Thematic data analysis identified themes about the influences on prescribing and PBPs' roles. Data saturation was considered to be achieved when the sample matrix was complete and no new themes were identified.

#### **Findings**

Data collection took place between November 2018 and April 2019. Interviews were completed with 17 prescribers (GPs (n=6), pharmacists (n=6), nurses (n=5)) and six key informants. One focus group was conducted with five key informants. Both samples stated that guidelines fundamentally influence prescribing, but identified competing influences including the prescriber's professional background, socio-economic profiles of patient populations and attitudes of individual patients. Media portrayals of medicines and public opinion were also identified. Prescribers identified practice-level influences, e.g. attitudes towards shared learning, and key informants emphasised the impact of NHS organisational policies and the availability of services. Key informants also highlighted underlying problems (e.g. polypharmacy) and 'medicines optimisation' principles (e.g. safe prescribing) developed to address these issues. Both samples identified PBPs' specific medicines expertise and highlighted variation in PBPs' roles and access to support. Prescribers' views were mixed about the extent to which PBPs' may influence prescribing in the future.

#### **Consequences**

Prescribing in general practice is influenced by multiple and competing factors. Development of successful strategies must first identify and then focus on influencing factors that are amenable to modification and take account of the range of professionals with prescribing responsibilities in general practice.

## **5C.4 Development of a model of clinical medication review for use in clinical practice**

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### **Problem**

NICE define medication review as a “structured, critical examination of a patient’s medicines with the objective of reaching an agreement with the patient about treatment, optimising the impact of medicines, minimising the number of medication related problems and reducing waste”. Within NICE guidance for medicines optimisation, regular medication review is recommended as a key priority for implementation and a mechanism for making medicines optimisation part of routine practice. Despite the guidance, there is still a lack of understanding about what constitutes a clinical medication review. Practical and detailed descriptions for what a clinical medication review should involve and how it should be delivered in clinical practice are lacking. The aim of this study was to; i) identify the ‘active ingredients’ of a medication review described in trials aimed at improving medication safety and efficacy when compared with usual care; and ii) develop a model of medication review for use in clinical practice.

### **Approach**

The starting point was a systematic review published in 2017 (Huiskes VJ. BMC Fam Pract) summarising the evidence for medication review as an isolated short-term intervention (as performed in clinical practice). An updated literature search, using the same search data sources and strategy was performed. Selection criteria included RCTs with adult participants ( $\geq 18$  years), involving a medication review intervention operationalised as a single, short-term intervention, delivered by a healthcare professional and involving the patient, within which all medicines used by the patient were considered. Trials in a palliative care setting were excluded. Titles and abstracts were screened, and full-text articles were considered by two reviewers independently. Data related to the characteristics of the intervention were extracted and analysed thematically to develop a framework to classify the components and functions (i.e. the ingredients) of the medication review strategies used. Outcomes investigated in each trial were also extracted.

### **Findings**

Overall, 1498 papers were identified and 31 were included. The ingredients of the medication review strategies of included trials have been classified. Outcomes have been organised into the six categories (drug efficacy, treatment safety, service use, cost, patient experience, mortality). Cross tabulation analysis of ingredients per trial according to each outcome is being conducted. A development group comprising the investigators and external advisers representing a range of stakeholder perspectives will be convened in January 2020 to review and synthesise the findings of the systematic review and develop a comprehensive and systematic approach to medication review.

### **Consequences**

A medication review model for use in a routine clinical practice setting will be of use to healthcare professionals who have roles in medicines optimisation; help to improve the consistency, transparency and quality of the medication review process; and encourage routine and improved dialogue between patients and prescribers around the use of medicines.

## **5C.5 Factors predicting the prescribing of statins for the primary preventing of cardiovascular disease: an historical cohort study**

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### **Problem**

Estimating CVD risk is central to determining potential benefits from statins and communicating this to patients, but statin prescribing often does not accord with estimated CVD risk. This study investigates how calculation of CVD risk influences statin prescribing, and what influences statin prescribing if a CVD risk is not calculated.

### **Approach**

A historical cohort study was undertaken using data from a large database of primary care records (THIN). Included patients were eligible for statins for primary prevention of CVD and had a lipid test between 2012 and 2016. The outcome was prescription of a statin within 60 days of the lipid result being recorded. Recorded QRISK2 scores (coded ten-year CVD risks) were extracted, along with variables used in calculating QRISK2 and others that might affect statin prescribing. If QRISK2 was not recorded, a post-hoc QRISK2 score was calculated. The cohort was described and the recorded or calculated QRISK2 score was used to describe statin prescribing in relation to NICE guideline eligibility. A mixed effects model (with each practice included as a random intercept) was used to establish the predictors of statin prescribing in patients with and without a recorded QRISK2 score. Non-linear predictor effects were modelled using multiple fractional polynomials.

### **Findings**

There were 686,560 entries into the cohort. 146,693 (21.4%) with a recorded QRISK2 score (the 'recorded' group). Statins were initiated in 6.6% of the recorded and 4.1% of the unrecorded groups respectively ( $p < 0.001$ ). Among patients in whom statins were indicated, more were prescribed statins if QRISK2 was recorded than unrecorded (19.2% v 6.2%,  $P < 0.001$ ). Among patients in whom QRISK2 was recorded, 85.0% of statin initiations met NICE eligibility criteria compared with 44.2% where QRISK2 was unrecorded ( $P < 0.001$ ). Among patients in whom QRISK2 was recorded, QRISK2 score was the most important predictor of statin initiation, but when QRISK2 was not recorded, total cholesterol was the main predictor of statin initiation, followed by diabetes.

### **Consequences**

Estimated CVD risk (QRISK2) is frequently not recorded prior to initiating statins in UK primary care. When QRISK2 is recorded, prescribing is more directed at patients with increased risk and hence those most likely to benefit. When QRISK2 is unrecorded, prescribing is mainly based on total cholesterol levels and therefore less associated with predicted benefit. When risk estimation is not used, patients will not have the required information to make treatment decision. Promoting the routine use of CVD risk estimation is essential to guide optimum statin prescribing and ensure patients have the necessary information to make shared decisions with their doctor. With increased focus on CVD prevention planned for early in the 2020's, we suggest that focusing on accurate risk assessment is the key to effective patient-centred care.

## **5C.6 Adverse events associated with a patent Traditional Chinese Medicine (Shufeng Jiedu Capsule) in clinical practice: a systematic review and meta-analysis of randomized controlled trials**

**Xiaoyang Hu**, University of Southampton

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### **Problem**

Shufeng Jiedu capsule (SFJD) is a traditional Chinese herbal medicine made from eight Chinese herbs which is widely used for upper respiratory tract infections, which has been on the market in China since 2009. Although there is some promising evidence on effectiveness of SFJD, there is lack of the evidence on its safety in clinical practice. This systematic review focuses on adverse events (AEs) caused by using SFJD to evaluate its safety.

### **Approach**

Randomized controlled trials (RCTs) reporting AEs of SFJD were included in this study. PubMed, Science Direct, MEDLINE, EMBASE, Web of Science, EMBASE, China National Knowledge Infrastructure (CNKI), Wan Fang, Sino-Med Database, and Chinese Science and Technology Journal Database (VIP) were searched from inception to August 2019. Two reviewers selected and screened studies and extracted data independently. The outcome focused on adverse events of using SFJD. Effect size measures were mean differences (MD), standardized mean differences (SMD), or risk ratios with 95% credible intervals (CIs). This study protocol was registered under PROSPERO, number CRD42019149389.

### **Findings**

No serious safety events were identified on the SFJD formula itself. Minor AEs included nausea, vomiting and diarrhoea, as well as other unspecified gastrointestinal discomfort, dizziness and rash. However, there were no statistical differences in the AEs between SFJD and the control groups. There was no difference between SFJD + usual care and usual care as measured by the number of AEs in respiratory conditions (RR 0.85, 95% CI [0.51, 1.42];  $P=0.45$ ,  $I^2=0\%$ , studies=33, participants=5710) or in other conditions (RR 0.85, 95% CI [0.51, 1.42];  $P=0.97$ ,  $I^2=0\%$ , studies=14, participants=2360). Similarly, there was no difference between SFJD and usual care as measured by the number of AEs in either respiratory conditions (RR 0.66, 95% CI [0.27, 1.1];  $P=0.98$ ,  $I^2=0\%$ , studies=7, participants=1339) or in other conditions (RR 2.50, 95% CI [0.49, 12.65];  $P=0.44$ ,  $I^2=0\%$ , studies=2, participants=240). One trial which compared SFJD to placebo reported no adverse events in either group.

### **Consequences**

No serious safety event was identified. Minor AEs included nausea and vomiting as the most common AEs, however, there is limited evidence showing these AEs were directly related to the SFJD treatment. However, the findings in this study should be interpreted with caution due to limited methodological quality of the included trials. Furthermore, strict trials with precise methodological design and rigorous reporting on safety evaluation of SFJD should be promising.

## 5D.1 Delayed Antibiotic Prescribing for Respiratory Tract Infections: an Individual Patient Data Meta-Analysis

**Beth Stuart**, University of Southampton

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### Problem

Antibiotics are still frequently prescribed for respiratory tract infections (RTIs), most of which are self-limiting and for which symptomatic benefit from antibiotics is modest at best. Delayed prescribing can be a useful strategy to reduce antibiotic prescribing. Whilst in some situations delayed antibiotic prescribing is appropriate, for other patients it may be unsuitable. It is important to understand which subgroups of patients may require immediate antibiotics and which patients might benefit from a delayed or no prescribing strategy.

### Approach

This study undertook a systematic review in Cochrane Central Register of Controlled Trials, Ovid MEDLINE, Ovid Embase, EBSCO CINAHL Plus and Web of Science to identify all randomised controlled trials (RCTs) and observational cohort studies of delayed prescribing. The primary outcome of interest was symptom severity scores. Secondary outcomes include duration of illness and reconsultation. Interaction terms for differential effects in subgroups were explored in the following pre-defined groups: shorter prior duration of illness, age, fever at baseline consultation, comorbid lung condition and severity of symptoms at baseline consultation. IPD meta-analysis was conducted using a one-stage approach, using generalised linear mixed modelling with a random effect for study. All models controlled for baseline severity of illness and diagnosis. Propensity scores were used as inverse probability weights to control for confounding in observational studies.

### Findings

We obtained data from 4 observational studies and 9 RCTs, totalling 56,301 patients. For the primary outcome, there was no statistically significant difference in symptom scores between delayed and immediate antibiotics (mean difference 0.04;95% CI -0.05,0.13) nor between delayed and no antibiotics (MD 0.03;95% CI -0.13,-0.19). The symptom duration was slightly shorter in those given immediate antibiotics (RR 1.07;95% CI 1.00, 1.14). Reconsultation was significantly less likely in those given a delayed prescription compared to those given no prescription (OR 0.69;95% CI 0.56,0.84). Subgroup analyses showed a statistically significant interaction term for those under 16 years and those with lung disease. Compared to those aged 16-64, those aged under 16 were more likely to have improved symptom scores with delayed prescribing compared to none and slightly poorer symptom scores with delayed compared to immediate. Symptom scores in those with lung disease were slightly higher in those who received a delayed prescription compared to none. However, none of these differences were represented a clinically meaningful difference. There were no statistically significant interactions in the other subgroups.

### Consequences

Delayed prescribing appears to be a safe and effective strategy for most patients, with no clinically significant increase in symptom severity in any of the pre-defined subgroups. Encouraging delayed prescribing as a tool in consultations may reduce reconsultation and is unlikely to be associated with an increase in symptoms or illness duration.

## **5D.2 Implementing a centralised nurse-led telephone-based service to manage chlamydia and gonorrhoea infections diagnosed in primary care: mixed methods evaluation**

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### **Problem**

Chlamydia trachomatis and Neisseria gonorrhoeae are the two most commonly diagnosed bacterial sexually transmitted infections in England, with 218,095 and 56,259 diagnoses reported in 2018, a 6% and 26% increase since 2017. Chlamydia, which is commonly asymptomatic, causes a substantial burden of disease, in women particularly, including chronic pelvic pain, ectopic pregnancy and infertility. Gonorrhoea treatment is threatened by the emergence of antimicrobial resistance, which is now a global public health priority. Up to 18% of Chlamydia infections and 9% of Gonorrhoea infections in England are diagnosed in Primary Care. However, evidence suggests that a substantial proportion of these cases are not managed appropriately in line with national guidelines.

### **Approach**

We investigated feasibility and acceptability of extending the National Chlamydia Screening Programme's centralised, nurse-led, telephone management (NLTM) as an option for management of cases of chlamydia and gonorrhoea diagnosed in Primary Care. Randomised feasibility trial in 11 practices in Bristol and North Somerset with nested qualitative study. In intervention practices patients and health care providers (HCPs) had the option of choosing NLTM or usual care for all patients tested for Chlamydia and Gonorrhoea. In control practices patients received usual care. Interviews were conducted with patients and HCP, purposively sampled to capture maximum variation in views and experiences of NLTM. Interviews were digitally recorded, transcribed verbatim and analysed thematically supported by NVivo11.

### **Findings**

1154 Chlamydia/gonorrhoea tests took place during the 6-month study, with a chlamydia positivity rate of 2.6% and gonorrhoea positivity rate of 0.8%. The majority of eligible patients in intervention practices were managed via NLTM (n=335). Interviews were conducted with sixteen HCPs (11 GPs, 5 nurses) and 12 patients. Patients perceived benefits of NLTM to be a faster and a more proactive approach to communicating test results. The convenience and greater anonymity of telephone consultations and being managed by a sexual health specialist was welcomed. HCPs expected the impact of NLTM on workload to be positive and to provide benefits for patients in relation to better and timely follow-up - particularly with regards to partner notification. Findings identified a need for improved clarity of NLTM pathway process for both patients and HCPs, and for timely HCP notification of actions taken by the NLTM. Without such feedback, HCPs often felt obligated to follow up positive test results themselves.

### **Consequences**

Extension of this established NLTM intervention to a greater proportion of patients was both feasible and acceptable. NLTM could both provide a better service for patients whilst decreasing primary care workload and contribute to better use of clinical resources and better patient outcomes. The study provides evidence to support the wider implementation of this NLTM approach to managing chlamydia and gonorrhoea diagnosed in primary care.

### **5D.3 The early use of Antibiotics for at Risk Children with Influenza (ARCHIE): a double-blind randomised placebo-controlled trial**

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#### **Problem**

'At risk' children with underlying medical conditions are more likely to develop complications from influenza/influenza-like illness (ILI) than otherwise healthy children. The UK government stockpiles co-amoxiclav to treat bacterial complications during influenza epidemics and pandemics. However, it is unclear whether early antibiotics prevent influenza/ILI-related clinical deterioration. We aimed to determine whether early co-amoxiclav treatment in 'at risk' children with influenza/ILI reduces risk of re-consultation due to clinical deterioration.

#### **Approach**

We recruited 'at risk' children aged 6 months-12 years who presented within five days of ILI onset. We opened 151 general practices, 44 hospitals and one walk-in centre for recruitment. Participants were randomly assigned to oral co-amoxiclav 400/57 twice daily or placebo for five days. Randomisation used a non-deterministic minimisation algorithm to balance age and vaccination status. Participants, caregivers and investigators were blinded to treatment allocation. Our intention-to-treat analysis included all randomised participants with available primary outcome data. The primary outcome was re-consultation due to clinical deterioration within 28 days of randomisation. Proportions of children re-consulting were compared using a log-binomial regression model with adjustment for region, age and seasonal influenza vaccination status. Our safety analysis included all randomised participants. We conducted an exploratory subgroup analysis in participants with laboratory-confirmed influenza. Influenza was detected by real-time PCR analysis of nasal swabs. Trial registration: ISRCTN 70714783. EudraCT 2013-002822-21.

#### **Findings**

Between February 11, 2015 and April 20, 2018, we recruited 271 children of whom 37 had laboratory-confirmed influenza (13.7%). Primary outcome data were available for 265 children. No significant difference was observed between groups in re-consultation rates (co-amoxiclav 33/133, placebo 28/132, unadjusted risk ratio [RR] 1.17, 95% confidence interval [CI] 0.75-1.82 risk difference[RD] 3.6%, 95% CI -6.5%-13.7%). This finding did not change after adjustment for baseline covariates (adjusted RR 1.16, 95% CI 0.75-1.80). There was no significant difference between groups in proportions of children with serious adverse events, none of which were considered related to study medication (co-amoxiclav 8/136, 5.9%; placebo 7/135, 5.2%; RD 0.7%, 95% CI -5% to 6%). The proportion of children with laboratory-confirmed influenza who re-consulted was lower among those who received co-amoxiclav (5/21, 23.8%) versus placebo (6/16, 37.5%). However, the difference between groups was not statistically significant (unadjusted RR 0.63, 95% CI 0.24-1.71; adjusted RR 0.55, 95% CI 0.20-1.55). We therefore did not find evidence that early co-amoxiclav treatment in 'at risk' children with influenza/ILI reduces re-consultations due to clinical deterioration. However, there may be a benefit in children with laboratory-confirmed influenza.

#### **Consequences**

Immediate antibiotics should not be given to 'at risk' children presenting early with influenza/ILI without evidence of bacterial infection. Antibiotics may be associated with clinical benefit during periods of high influenza activity. However, further research is needed to more accurately identify children who may benefit from early intervention.



#### **5D.4 Using evidence-based infographics to increase parents' understanding about antibiotic use and antibiotic resistance: a proof-of-concept study**

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##### **Problem**

Antibiotic resistance is an important societal health issue. The greatest risk factor for developing a resistant infection is antibiotic use. Almost 75% of all antibiotics in the UK are prescribed in primary care. Estimates suggest that at least one third of all antibiotics prescribed in primary care are unnecessary especially in preschool children with self-limiting respiratory tract infections. Public misconceptions about antibiotic use persist despite the efforts of antibiotic awareness campaigns. These campaigns have often followed a top-down approach and have not sought input from the public about their personal experiences of managing illness. It is crucial that communities see antibiotic campaign messages as relevant, accessible and important in order to have an influence on health seeking behaviour and antibiotic use. We therefore set to develop a series of evidenced-based infographics (EBIs) on antibiotic use for common infections in children and to evaluate their effectiveness at increasing parents' understanding of antibiotic use and antibiotic resistance.

##### **Approach**

There are three phases to this research. In phase 1 we set out to identify and summarise scientific evidence for the use of antibiotics for three common infections in children (sore throat, acute cough and otitis media). Phase 2 focussed on co-design of a series of prototype EBIs for each infection in focus groups with parents of young children to test the face- and content validity. Phase 3 will test the feasibility of EBIs in increasing parents' understanding about antibiotic use and the perceived relevance of antibiotic resistance in an online survey.

##### **Findings**

This proof-of-concept study is a work in progress. We have co-developed, reviewed and revised a series of EBIs with parents and professional graphic designers using the evidence from phase 1 in two focus groups. The process and prototype EBIs will be showcased at conference.

##### **Consequences**

This study will identify how parents interpret EBIs on antibiotic use and antibiotic resistance and inform novel approaches to improving antibiotic stewardship initiatives in the community.

## **5D.5 Clinicians views and experiences of implementing a complex intervention to reduce antibiotic prescribing in children with Respiratory Tract Infections in primary care**

**Clare Clement**, University of Bristol

*Clare Clement, Jenny Ingram, Christie Cabral, Pete Blair, Patricia Lucas, Jeremy Horwood*

### **Problem**

Antimicrobial resistance is recognised as one of the most pressing global public health threats of our time. Respiratory Tract Infections (RTIs) in children present major primary care challenge because they are common, costly and ongoing uncertainty regarding diagnosis and management is a major driver of antibiotic prescribing. Improved identification of children at low risk of future hospitalisation could increase confidence of when not to prescribe antibiotics for RTIs. To address this, The CHiildren with Cough Cluster Randomised Controlled Trial (the CHICO RCT) aims to reduce antibiotics prescribing amongst children presenting with acute cough or RTI without increasing hospital admission. The CHICO intervention incorporates a clinician focussed prognostic algorithm to predict hospitalisation in children with RTIs and a carer-focussed personalised advice leaflet recording treatment decisions, care and safety netting information. As part of the CHICO RCT pilot study, we conducted qualitative interviews with clinicians to investigate the actability and feasibility of the CHICO intervention.

### **Approach**

Semi-structured interviews with clinicians to explore views and experiences of the CHICO intervention. Clinicians were sampled to include those from practices with high and low patient list sizes and high and low prescribing rates. Normalisation process theory, which outlines the social processes involved in intervention implementation, informed data collection and thematic data analysis.

### **Findings**

We interviewed 8 GPs and 2 nurses from 8 practices. Clinicians liked the intervention and used it as a supportive aid within consultations, describing it as a “safety net”. It was a way of reassuring themselves and parents of the appropriateness of some treatment decisions. They liked the patient advice leaflet as it helped explain treatment decisions and home care with parents. Most clinicians liked the algorithm template, found it easy and straightforward to use, without adding any more time to consultations. However, a minority of clinicians stopped using the algorithm because they were unclear how to complete the template, which led them to think it wasn't working. Other issues encountered during the pilot included the use of a ‘hard pop-up’ which launched for all children under 10 years. This limited use of the intervention for some because it was launched at a point too early in the consultation to be useful. Findings were fed back to the Trial Management Group who used the information to make changes to improve the intervention for the main trial. For example, a modified ‘soft pop-up’ in relation to diagnosis read codes was implemented.

### **Consequences**

Clinicians reported the CHICO intervention to be beneficial for supporting clinician's decision making around antibiotic prescribing for children with cough or RTI and helped discussions with parents. The findings demonstrate the value of conducting qualitative interviews early in trials to identify initial teething problems and inform refinements to study design.

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